2016

Use of Student Created Video Podcasts to Promote Foreign Language Grammar Acquisition in Middle School

Sergio Parra
Nova Southeastern University, sp580@nova.edu

Use of Student Created Video Podcasts to Promote Foreign Language Grammar Acquisition in Middle School

by

Sergio Parra

A dissertation submitted in partial fulfillment for the requirements
for the degree of Doctor of Philosophy
in
Computing Technology in Education

College of Engineering and Computing
Nova Southeastern University

2016

We hereby certify that this dissertation, submitted by Sergio Parra, conforms to acceptable standards and is fully adequate in scope and quality to fulfill the dissertation requirements for the degree of Doctor of Philosophy.

_____ _____

Gertrude W. Abramson, Ed.D Date
Chairperson of Dissertation Committee

_____ _____

Steven R.Terrell, Ph.D. Date
Dissertation Committee Member

_____ _____

Martha M. Snyder, Ph.D. Date
Dissertation Committee Member

Approved:

_____ _____

Yong X. Tao, Ph.D., P.E., FASME Date
Dean, College of Engineering and Computing

College of Engineering and Computing
Nova Southeastern University

2016

An Abstract of a Dissertation Submitted to Nova Southeastern University
in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

Use of Student Created Video Podcasts to Promote Foreign Language Grammar Acquisition in Middle School

By
Sergio Parra
June 2016

The use of video podcasts in education has emerged as a phenomenon that has gained a considerable amount of attention over the last few years. Although video podcasting is becoming a well-established technology in higher education, new multimedia instructional strategies such as student-created video podcasts in grades K-12 are under-researched.

The study investigated the effects of video podcasts created by students to promote foreign language grammar acquisition at the middle school level and find how students described such experience. The current investigation was conducted by using the explanatory sequential design, which is a mixed methods research design that occurs in two distinct interactive phases.

The use of the explanatory sequential mix methods design allowed the collection of quantitative and qualitative data that served as corroborative evidence to answer three research questions: What differences in terms of achievement exist between middle school students who create a video podcast to promote foreign language grammar acquisition and students who followed a traditional instructional approach? How do the interviews with students help to understand their experiences when using a student-created video podcast as an instructional strategy to promote foreign language grammar acquisition? How can the experiences that emerge from the quantitative and qualitative data be useful to promote student achievement in other subject areas?

Although quantitative results indicated that the use of student-created video podcasts by middle school students had no significant effect on foreign language grammar acquisition, the qualitative findings of this investigation provide insights for middle school educators, parents, school administrators, and stakeholders with respect to the experiences of middle school students when using this multimedia learning strategy. Recommendations about its implementation and how this student-centered approach can empower learners and promote engagement and motivation for learning, in order to improve cognitive learning, have been included as well.

Acknowledgements

This achievement would have never been possible without God's strength and love. For that reason, I want first to give praise, glory, honor and thanks to God for equipping me with the ability, resources, and perseverance to accomplish this goal.

This work is the culmination of years of dedicated hard work with financial restraints, health challenges, family deprivation, and many other sacrifices. It was not an easy journey, but I am so grateful for the emotional support and encouragement I have received from my family, colleagues, church members, and longtime friends.

I am especially thankful for the loving support of my wife Aylen, and my two children Sergio Alexander and Ayleen Paola for being patient and understanding during the times when they may have needed me the most. Thank you for your patience, kindness, understanding, unconditional love, and unwavering support that helped me to achieve my dream. I want to thank you for your never ending support in helping me to believe in myself and my abilities to achieve my educational goals. This has been a family project, and after God, I dedicate this achievement to my family. I cannot forget my dearest daughter Michelle Alexandra, who despite her early departure from this world has given me the strength and inspiration to keep working hard.

I am grateful for my wonderful parents Sergio and Cecilia for their daily prayers for me and for guiding me in the ways of the Lord throughout my formative years and into my adult life. I am grateful to my brothers, German and Rodrigo, and my sister Martha for their prayers and encouragement, and for constantly checking up on me about my progress and challenges.

I could never have reached this goal without the guidance and support during the dissertation process of my dissertation committee members. I am forever grateful to my dissertation chair, Dr. Gertrude Abramson. I would not have completed this dissertation without you. You believed in me and gave me the confidence I needed to accomplish this goal**.** A couple of years ago, while I was flying from Beijing to Detroit after attending an International Conference in Singapore, I felt that school was too much for me. Overwhelmed by all my responsibilities, struggles and sacrifices I decided to quit my doctoral studies. When I notified my professor, mentor, and friend, Dr. Abramson, of my decision, these were her words: "Sergio**:** I am not giving up on you. Please do not give up on yourself. The time is 12:30 PM on Sunday. I will be home for the next few hours. If you pick up this message soon, please call me at... Trudy". The rest is history. I reached this point because someone believed in me, because Dr. Abramson did not give up on me.

I also want to express my gratitude to Dr. Martha Snyder and Dr. Steven Terrell. Your invaluable support and guidance during the strenuous revision process will always be appreciated. Your advice throughout the process gave me additional confidence and assurance to move forward. I would also like to express my appreciation to Dr. Ling Wang and Dr. Laurie Dringus who provided valuable preparation during my coursework. I would be in eternal debt with you all.

Table of Contents

List of Tables

Tables

List of Figures

Figures

Chapter 1

Introduction

Background

Grammar is an essential aspect of language for effective communication, but at the same time, it is one of the most difficult issues for foreign language instruction (Mart, 2013). Defined as a "system of meaningful structures and patterns that are governed by particular pragmatic constrains" (Larsen-Freeman, 2009, p. 521), grammar is a dynamic pattern formation that plays a key role in foreign language acquisition. Liamkina and Ryshina-Pankova (2012) suggest that in order to overcome the challenges of teaching grammar, foreign language instructors must change the conception of grammar as a collection of isolated structural rules. Instead, grammar should be considered as a meaningful account that promotes communicative goals within a context.

Despite new technological advances in education and decades of effort to introduce new pedagogical strategies in the teaching of grammar in foreign languages, teachers still use traditional methods for introducing foreign language grammar that are characterized for lack of engagement and interest from learners (Liamkina & Ryshina-Pankova, 2012). Some of the new technologies for teaching foreign language grammar, which include grammar-oriented tutorials, sentence-based tasks, and web based activities, remain unknown or, in some instances, teachers manifest lack of interest in adopting these new strategies (Levy, 2009).

According to Mart (2013) learners cannot develop their language skills with little understanding of how language functions. Grammar is in this context an essential aspect to communicate effectively. Philip, Walter, and Basturkem (2010) suggest that peer interaction may facilitate grammar acquisition by fostering learner production with appropriate feedback and noticing of form, which is the conscious attention of new grammatical features due to the frequency or salience of the feature. In this regard, Liamkina and Ryshina-Pankova (2012) suggest that a functional approach to grammar helps learners become researchers who can discover by themselves that grammar is an empowering resource that has a direct impact on making meaning.

Koehler, Thompson, and Phye (2011) argue that well-designed multimedia presentations should allow learners to build mental connections between verbal and pictorial representations that stimulate their cognitive abilities to facilitate the construction of inductive reasoning schemas. They conclude that effective multimedia presentations that are grounded on cognitive theories should promote not only conceptual understanding of passive voice grammar, but help learners in transferring the grammar concept of passive voice to procedural knowledge.

In this regard, Baturay, Daloglu, and Yildirim (2010) suggest that effective interaction with multimedia learning stimulate and sustain student motivation and help them perform better with complex grammatical concepts. They argue that a multimedia environment considers individual differences in learning preferences and offers learners a choice from a great variety of modes of information. Multimedia activities make learning attractive, and learners are motivated when participating in enjoyable activities supported by sound, visuals, animations, and video.

One of the principles of multimedia learning asserts that students learn better when words and pictures are used together in instruction than from words alone (Mayer, 2005). However, not all multimedia presentations are equally effective in promoting meaningful learning by simply adding pictures or dynamic graphics to words. In order to promote meaningful learning, the design of multimedia instructional material must take into consideration how students learn (Mayer, 2005).

From a constructivist approach, meaningful learning occurs when students are encouraged to actively engage in the construction of new knowledge structures through experience (Ng'ambi & Lombe, 2012). Student-generated video podcasts has emerged as a multimedia instructional strategy that has been associated with promoting learning through student engagement with content (Crowe, 2009). Such level of engagement provides more opportunities to students to experience and retain content.

Brown (2007) found that when students are allowed to design and create multimedia presentations, a high level of motivation and task engagement is exhibited. Students also develop other critical skills, such as higher order thinking, and self-reflection. Liu, Horton, Olmanson, and Toprac (2011) also found that engaging students as multimedia designers could increase their intrinsic motivation which is highly correlated with their academic success.

Problem Statement

Although multimedia learning seems to provide an ideal environment to develop the necessary skills to produce a comprehensible language output, Ibrahim (2012) cautions that as learning foreign language grammar is intrinsically complex, it can be

very demanding for the learners' cognitive system. He suggests that an effective instructional design needs to consider the cognitive capacity for active knowledge construction. Brünken, Steinbacher, Plass, and Leutner (2002) proposed that an ideal design of multimedia learning should minimize requirements of extraneous load and maximize the potential for deep cognitive processing during learning.

Grounded on the principles of the Cognitive Theory of Multimedia Learning (CTML), Ibrahim (2012) suggests that the use of video podcasting as an instructional multimedia may help learners free up cognitive load with the purpose of organizing and integrating information more effectively as well as efficiently and ultimately improving the students' learning. The use of video podcasting has been specifically associated with helping students in gaining deeper learning and improving student performance as they can combine visual and auditory representations into a single multimedia presentation (Walker, Cotner, & Beerman, 2011). However, very few studies about video podcasting in middle schools have gone beyond the passive mode of watching teacher-produced content to one that engage students in the process of creating video podcasts (Lee, McLoughlin, & Chan, 2008). The convenience for accessing teacher-produced video podcasts is certainly an advantage, but it cannot promote active learning (Litchfield, Dyson, Wright, Pradhan, & Courtille, 2010).

The involvement of middle school students in planning and creating their own video podcasts and how this engagement may promote active learning has not been adequately considered. As an instructional strategy, the student-created video podcasts open a door of opportunities for active learning that need to be examined. While Johnson (2008) reported that student-created video podcasting is uncommon, with little attention

in the literature, Kay (2012) suggested that additional research on the use of video podcasting as an instructional strategy is needed.

Most of the literature about the use of video podcasting in education came from examples of instructors in higher education creating such digital material to supplement class content (Alpay & Gulati, 2010; Popova & Edirisingha, 2010; Abdous, Facer & Yen, 2012; Kay, 2012). Less is known about the effects of direct involvement of students in designing and creating video podcasts with the purpose of promoting student achievement (O'Bannon, Lubke, Beard, & Britt, 2011; Abdous et al., 2012; Hasan & Hoon, 2013). While higher education captures most of the sample population in previous research, other segments of the student population, such as K-12 and more specifically the middle school level, are scarce in the literature and deserve time and attention (Kay & Edwards, 2012; Santos-Green, Inan, & Maushak, 2014; Shankar-Brown & Brown, 2014; Chen & Wu, 2015).

Therefore, the problem identified was the need to investigate the effects of implementing student-created video podcasts to promote foreign language grammar acquisition at the middle school level and find how students described such experience. The use of student-created video podcasts as a multimedia instructional strategy and a multimedia learning tool to enhance foreign language grammar acquisition by middle school students needed to be investigated.

Dissertation Goal

The goal was to determine the effectiveness of implementing student-created video podcasts as a multimedia instructional strategy to promote foreign language

grammar acquisition at the middle school level. In order to achieve the transfer of passive voice grammar into procedural knowledge and promote communicative goals in foreign language instruction, principles of CTML guided the design of the video podcasts by middle school students to minimize extraneous load and maximize potential for deep cognitive processing.

The use of student-generated video podcasts as an instructional and a learning tool in foreign language instruction in the middle school level is important to a broad constituency that includes educators, parents, administrators, and stakeholders. The findings provide a comprehensive guide with respect to the implementation of student-created video podcasts in order to promote engagement and motivation in other content areas and result in improved achievement. The proposed study also contributes to the body of research on student-generated video podcasts by exploring a context that is severely under-represented in K-12 education and more specifically in the middle school segment. To guide the research process with the purpose of attaining the goal, the following research questions were investigated and answered.

Research Questions

The following questions guided the study:

1. What has been reported in the literature about multimedia development by students and its effect on learning?
2. What learner-centered learning theory will be used as a theoretical framework by foreign language middle school students to guide the creation of the video podcasts?

3. What differences in terms of achievement exist between middle school students who create a video podcast to promote foreign language grammar acquisition and students who follow a traditional instructional approach?
4. How do the interviews with students help to understand their experiences when using a student-created video podcast as an instructional strategy to promote foreign language grammar acquisition?
5. How can the experiences that emerge from the quantitative and qualitative data be useful to promote student achievement in other subject areas?

Relevance and Significance

With the appearance of the podcasting technology, the use of video podcasts in education has occupied the central focus of research in the last 10 years while video podcast pedagogy has been the least researched (Kay, 2012). The only two studies reported by Kay (2012) that examined the pedagogical strategies for using video podcasts focused their attention on higher education. This finding opens the door for further investigation on the pedagogical strategies for implementing this technology and how this approach may impact learning in other segments of the student population such as middle schools (Kay & Edwards, 2012).

Three pedagogical strategies emerged from the literature. The receptive viewing, which is by far the most common video podcast strategy, delivers teacher-directed information to be viewed in a relatively passive manner by students. The problem-solving, also known as worked example, delivers teacher-developed information on how to solve specific problems, and the student-generated video podcasts is the last and most

uncommon strategy in which students plan and create their own academic-based video podcasts (Kay, 2012).

Considering that student-generated video podcasting is the least researched of the three pedagogical strategies reveals that more research was needed to examine how the creation of video podcasts as a pedagogical strategy influences learning. It is also significant that recent discoveries of the effects of student-generated video podcasts in higher education, such as improving enquiry-based and independent learning in higher education (Kemp, Mellor, Kotter, & Oosthoek, 2012), needed to be replicated and validated in other educational settings such as middle schools (Kay & Edwards, 2012). Although a few studies provided some evidence that the creation of video podcasts may promote better understanding with the learning material in higher education (Alpay & Gulati, 2010; Popova & Edirisingha, 2010), it was vital and significant to unveil if the better understanding and consequent student achievement can also be replicated among middle school students.

The study on the implementation of student-generated video podcasts as a pedagogical strategy in middle schools is important to a broad constituency. The new challenges to promote a higher thinking level and engagement allow teachers from all segments in K-12 to be more receptive to utilizing innovative technologies available for 21st century learners such as the one proposed on this research. As stated by Crow (2009), not only educators, but students are more receptive to learning and teaching with these cutting edge technologies.

Aligned with the constructivist theory that indicates that learning occurs when learners actively construct their own knowledge (Bruner, 1960), by providing

opportunities and contexts to make sense of what is to be learned (Duffy & Jonassen, 1991), the study assists educators in considering if student-created video podcasts can encourage students to generate their own representations of knowledge that is conducive toward effective learning and student achievement. The study was justified in targeting whether student-created video podcasting is still a viable learner-driven strategy that can be implemented in middle schools with the purpose of promoting student achievement.

Barriers and Issues

The research conducted acknowledged the existence of potential barriers and issues that needed to be primarily addressed to avoid an abnormal end and failure in reaching the goals. Harris and Roberts (2003) suggest that recognizing barriers in research not only involves acknowledging the possible problems, but most important, preempting the potential challenges and taking the appropriate steps to overcome them.

The anticipated study barriers and issues fell into two categories: intrinsic and extrinsic barriers. The intrinsic barriers gravitate around the rationale and procedures for conducting the proposed mixed methods study and the behavioral framework that guide the research. Even though the design of the study is up to the researcher, it was critical to identify the reasons for using mixed methods as a methodology. Creswell (2015) suggests that it is necessary to advance a rationale for the use of mixed methods in order to convince readers about the proposed methodology.

The research questions for the study required the integration of quantitative and qualitative data to provide the answers that could not be answered by quantitative or qualitative approaches alone. The fourth and fifth questions were written following a

combination mixed methods question for the explanatory sequential design, which is a research question about mixing the quantitative and qualitative data proposed by Creswell and Plano Clark (2011). This type of research question made the methods and the content of the study explicit, and it is, according to their proponents, the most recommended for being the most complete.

The data collection and the length of the study were procedural issues that also needed careful consideration. Since sampling occurs in the quantitative and qualitative phases, both the quantitative and qualitative data collections were related to each other and not independent. Creswell and Plano Clark (2011) suggest that one builds on the other regardless if the emphasis of the study is on the quantitative or qualitative data. Considering that the primary focus of the explanatory sequential design is to explain quantitative results with the collection and analysis of qualitative data (Creswell & Plano Clark, 2011), the participants in the second phase comprised students who contributed in the initial phase but from a much smaller sample. Creswell and Plano Clark (2011) argue that the purpose of the explanatory sequential design is not to merge or compare the data, but to collect enough qualitative data to find meaningful themes that explain the quantitative results. Thus, the quantitative results guided the selection for participants for the qualitative follow-up phase. Known as the systematic approach, this sample procedure guarantees the selection of participants that can explain the phenomenon of interest (Creswell & Plano Clark, 2011).

The time needed to implement the two phases was another issue that needed careful planning. Gay, Mills, and Airasian (2011) advise that qualitative data collection involves the collection of several data that takes more time to implement than the

quantitative phase. Even though limiting the number of participants in this phase could have been helpful, Creswell and Plano Clark (2011) advise that allocating the appropriate time for this phase must be budgeted. Other potential intrinsic barriers such as developing relevant interview questions for the second phase, the integration of qualitative and quantitative finds, and threats to validity will be discussed in further detail in Chapter Three.

The extrinsic barriers were contingencies that were largely dependent on external factors that could have been potential obstacles in pursuing the goals. The explanatory sequential design faced a challenge in obtaining an expedited review from the institutional review board (IRB) as voice and video recordings were collected throughout the course of the study, and participants in the second phase were interviewed. Also, the selection of participants for the second phase was not precisely determined until the initial findings were obtained. Even though the IRB required a full submission of procedures for data collection with the initial application, Creswell and Plano Clark (2011) recommend notifying the IRB about the possibility of sending an addendum as the plans for the follow-up phase may evolve from the results of the first phase. The potential delay as a consequence of submitting an addendum to the IRB was taken into consideration.

Another extrinsic barrier was the equipment needed for the participants to create the video podcasts. The researcher installed Camtasia Studio® version 8.6.0 in all the computers at one of the available labs at the research site. This software allowed students to record their video presentations and edit the content.

Scope of the Study

Limitations

The following factors that are beyond the control of the researcher were considered with regards to the study's results.

- Participants in this research were middle school students that may not necessarily represent all students from the same level; as a consequence, the results may not be generalized.
- The two-phase approach suggested for this study required a considerable amount of time to implement (Creswell & Plano Clark, 2011).
- The researcher did not have the luxury of building a research team to undertake the mixed methods selected for the proposed study. Creswell (2015) suggests that having team members with experience in quantitative and qualitative research may facilitate the multidisciplinary interaction necessary to conduct a mixed methods research.
- The nuances associated with the use of technology may have influenced the results even though time was not constrained by unexpected events.
- Participants in the control group may have lost interest and motivation as they found that participants in the experimental group were engaged in a different strategy that can be perceived as desirable and being withheld from them. Known as resentful demoralization of control group (Borg, 1984; Martella, Nelson, Morgan, & Marchand-Martella, 2013), this threat to internal validity can be understated by the presence of the John Henry effect, which occurs when participants in the control group may actively work harder to overcome any

potential disadvantage of being in the control group (Cook & Campbell, 1979). Levin and Calcagno (2008) propose that this effort from participants in the control group is unlikely to be marshaled or sustained under routine implementation. Similar influence arises when the presence of the Hawthorne effect, which occurs when participants perceive that they are receiving special treatment and improve their behavior in response to their awareness of being observed (McCarney, Warner, Lliffe, Van Haselen, Griffin, & Fisher, 2007; Oswald, Sherratt, & Smith, 2014), overstates the efficacy of the intervention when replicated routinely (Levin & Calcagno, 2008). To minimize the effects of the aforementioned threats to internal validity, Borg (1984) suggests a procedure that includes similar duration of the treatments with similar levels of participation and demands, and similar perceived value of the treatments. Borg (1984) proposes that treatments can be presented in such way that may elicit equal desirability. This was accomplished by following a similar procedure with both groups. Borg (1984) suggests the use of the same number of contact hours and having the same instructor that uses the same curricular content and have the same goal. Kocakaya (2011) also suggests that the teacher should follow the same manner of representation to both groups and participants in the control and experimental groups should be taught by the same teacher. Martella et al. (2013) advise conducting several observations in both classes before the implementation of the independent variable to determine the normal routine in each class. With the implementation of the independent variable, the observation of the routines in both classes continued to confirm that the teacher was not altering the routine or that participants were not being

somewhat affected from potential threats. At the same time, it is important to note that participants for the proposed study were quite familiar with differentiated instruction in which teachers provide a great variety of strategies within the same subject when delivering instruction to different groups. That may include visuals, tactile, auditory, drills, fine arts, and technology. Saretsky (1975) suggests that the John Henry effect is likely to occur when an innovated treatment is introduced in such manner as to be perceived as threatening. Therefore, the instructor made every effort to elicit equal desirability with both groups. It was expected that the use of different strategies to master new grammatical concepts instruction may have been seen by participants as another unit/topic in which differentiated instruction was being utilized.

Delimitations

The following factors, although under the control of the researcher, were considered with regards to the study's results.

- The explanatory sequential design proposed for the study involved the collection of quantitative and qualitative data. They are related to each other and not independent (Creswell & Plano Clark, 2011).
- Participants were comprised of middle school students at a single school in Gwinnett County, Georgia.
- The study duration was limited to one single unit of foreign language grammar instruction of Spanish level 1.

- A single researcher conducted the study. The researcher, who acted as a teacher during the study, was in charge of conducting the investigation. The possibility of research bias by this dual role was minimized as much as possible by calling experts who reviewed the process and provided their inputs.

Acronyms and Definition of Terms

Acronyms

1. ACT – Information and Communication Technology
2. AEQ – Achievement Emotions Questionnaire
3. CCRPI – College and Career Ready Performance Index
4. CERI – Cognitive Enhancement Research Institute
5. CTML – Cognitive Theory of Multimedia Learning
6. ICT – Information and Communications Technology
7. PDAs – Personal Digital Assistants

Definitions of Terms

College and Career Ready Performance Index – It is a comprehensive school improvement, accountability, and communication platform for all educational stakeholders that will promote college and career readiness for all Georgia public school students. (Georgia Department of Education, n.d).

Constructivist Theory – Learning occurs when learners actively construct their own knowledge when providing opportunities and contexts to make sense of what is to be learned (Bruner, 1960; Duffy & Jonassen, 1991).

Dual-Channel Assumption – It suggests that humans have the ability to process information based on how the material is presented. Verbal material, such as spoken or printed words, is processed by the auditory/verbal channel, while non-verbal material, such as pictures, video, animation, or background sounds, is processed by the visual/pictorial channel (Mayer & Moreno, 2003).

Georgia School of Excellence – The Georgia Schools of Excellence is a program that honors schools from each of the state's 14 congressional districts. Elementary, middle, and high schools that are either academically superior or demonstrate dramatic gains in student achievement are awarded with the Georgia School of Excellence recognition (Georgia Department of Education, n.d.).

Grammar – A system of meaningful structures and patterns that are governed by particular pragmatic constrains (Larsen-Freeman, 2009).

Limited Capacity Assumption – It suggests that working memory can only process a limited amount of information at one time (Mayer, 2005).

Meaningful Learning – When students are encouraged to actively engage in the construction of new knowledge structures through experience (Ng'ambi & Lombe, 2012).

Multimedia Learning – Multimedia learning is a cognitive theory proposed by Richard E. Mayer (2005) that asserts that people learn more deeply from words and pictures than from words alone.

Personalization – when conversational style is used in the video podcast presentation rather than using a formal style (Mayer, 2009).

Pre-training – when key concepts and terms are previously introduced by the teacher (Mayer, 2009).

Segmentation – When complex material is divided into meaningful segments (Mayer & Moreno, 2003).

Signaling – When essential material is highlighted or cued (Mayer & Moreno, 2003).

Video Podcasting – It is a term used to designate the transfer of video files in a digital format over the Internet (McGarr, 2009).

Voice – when the message is delivered by a friendly human voice rather than using a machine voice or a foreign-accented human voice (Mayer, 2009).

Weeding – When irrelevant material is removed with the purpose of reducing the negative cognitive effects of extraneous content (Mayer & Moreno, 2003).

Organization of the Study

The study began with the context for the research and stating where the research was to be conducted. The problem was then identified by using current literature that substantiated the need for the study. The goal was presented with a set of five research questions that guided the study followed by the relevance and significance, the barriers and issues, the scope of the study, and the definitions and acronyms.

The following chapter contains a comprehensive review of the literature about the use of video podcasting in middle schools to provide the knowledge base upon which the study will be developed. Chapter Three describes the methodology, which includes the design, approach, procedures, data collection, how the findings are presented, and the resources that will be used. Chapter Four presents the results by including an objective

description and analysis of the findings, and Chapter Five concludes the report by presenting the conclusions, implications, recommendations, and a summary.

Chapter 2

Review of the Literature

This chapter presents a comprehensive review of the literature about the use of video podcasting in middle schools to create a solid foundation for advancing knowledge in this technology and uncover potential areas where research is needed. Although video podcasting has seen a considerable rise in usage over the last few years, Parson, Reddy, Wood and Senior (2009) point out that video podcasting is still a new technological frontier in education with a great deal of literature, particularly on higher education. In contrast, Blok and Godsk (2009) suggest that video podcasting, in relation to teaching and learning, has a very young literature. This finding seems to be more relevant in the middle school setting. Kay (2012) found that from the 53 studies conducted on video podcasting from 2002 to 2011, only three focused on its use in middle schools.

This review examined the ways in which video podcasting has been used in middle schools by synthetizing previous research findings, analyzing the use of video podcasting as a learning tool, and presenting the benefits and challenges of using the technology. A brief overview of this technology that includes its beginnings, growth, equipment, and types of video podcasts will also be presented.

Even though this review comprises a careful examination of the existing body of knowledge on video podcasting in middle schools, other settings may be referred to only to enhance the understanding of its use in education with the purpose of substantiating the presence of a research problem that justifies the proposed study.

Cognitive Theory of Multimedia Learning

Multimedia learning is a cognitive theory proposed by Richard E. Mayer (2005) that incorporates previous theories on how people learn. Based on Baddeley's model of working memory, Paivio's dual coding theory, and Sweller's theory of cognitive load, Mayer (2005) asserts that people learn more deeply from words and pictures than from words alone.

Mayer and Moreno (2003), argue that information that is received through two channels is better processed and stored than information received from just one sensory channel. The Dual-Channel assumption, which is the first of the three assumptions of the CTML, suggests that humans have the ability to process information based on how the material is presented. Verbal material, such as spoken or printed words, is processed by the auditory/verbal channel, while non-verbal material, such as pictures, video, animation, or background sounds, is processed by the visual/pictorial channel. This assumption, which is based on Paivio's (1986) dual-coding theory, contends that for some advanced learners, visual information can be represented in the auditory channel and vice versa. This cross-channel event illustrates the capacity that learners have to handle auditory and visual information at the same time. Despite the ability for converting representations, and selecting the appropriate presentation of learning topics by the students, Mayer and Moreno (2003) warn designers of multimedia learning about exceeding the student's cognitive capacity. As suggested by Paas, Tuovinen, Tabbers, and Van Gerven (2003), the development of instructional methods, such as multimedia learning, should be of major consideration when designing instruction due to the use of

student's limited cognitive processing capacity, which is closely related to the limitations of working memory.

The second assumption, known as the limited capacity, suggests that working memory can only process a limited amount of information at one time. Based on Sweller's (1988, 1994, 2005) cognitive load theory, DeLeeuw and Mayer (2008) theorize that during learning there are three types of cognitive processing that contribute to cognitive load in multimedia learning. Table 1 offers a summary of the three ways of creating cognitive load with examples in multimedia learning.

Table 1
Three Ways of Creating Cognitive Load in Multimedia Learning

Type of Cognitive Load	**Example of cognitive load manipulation**	
Extraneous load	Redundancy	Redundant: Multimedia product synchronizes animation, narration, and on-screen text.
		Non-redundant: Multimedia product synchronizes animation and narration.
Intrinsic or essential load	Complexity	High complexity: Multimedia product contains many interacting concepts.
		Low-complexity: Multimedia product contains few interacting concepts.
Germane or generative load	Transfer	Low-transfer: Student opts for not engaging in deep cognitive processing during learning.
		High-transfer: Student engages in deep cognitive processing during learning.

Note: This table summarizes the three ways of creating cognitive load in multimedia learning as suggested by DeLeeuw and Mayer (2008).

According to Mayer (2009) this model, also known as the *triarchic model of cognitive load*, summarizes the main objective of multimedia learning which is to "manage essential processing, reduce extraneous processing to foster generative processing (p. 57).

De Jong (2010) advises that when cognitive overload occurs and working memory capacity is exceeded, learning can be hindered. Ocepek, Bosnic, Nancovska, and Rugelj (2013) suggest that to avoid cognitive overload and stress, multimedia designers should use appropriate learning materials and guide students through the learning process. Chen and Sun (2012) found that inappropriate multimedia material may cause stress on students with negative consequences, such as unchanged learning performance.

Ocepek et al. (2013) discuss the importance of understanding students' learning styles to recommend appropriate multimedia presentations for different learners. As stated by Reed (2006), the effectiveness of using multimedia learning can be enhanced by providing richer environments in which learners can actively engage in cognitive processing to foster meaningful learning. This is precisely the last of the three assumptions of the CTML, the active processing. Mayer (2005) suggests that learners should actively engage in cognitive processing for learning to occur. Sorden (2013) explains that under this assumption learners focus their attention on relevant information that, once integrated with prior information, can be organized into a new coherent mental structure. Mayer (2005) summarizes the assumption as simply making sense of multimedia presentation.

According to Ibrahim (2012), the previous assumptions of the CTML provide a useful framework to explain the cognitive processing during learning from a wide variety of multimedia presentations. Using this theoretical framework, Ibrahim (2012) conducted a quasi-experimental study to assess the effect of instructional videos and students' knowledge acquisition among 226 undergraduate students in a large

Midwestern university in the United States. Using a modified version of a professionally produced 34 minutes long video about insects that followed the CTML principles of segmentation, signaling, and weeding, the study found that even though educational videos have the potential to improve learning, they can be very demanding for the learners' cognitive system when large amounts of visual and auditory stimuli are prompted at one time. Ibrahim (2012) suggested conducting an empirical test with shorter videos to determine their effectiveness on the students' cognitive and learning outcomes.

Lin, Hung, and Chang (2013) analyzed the effects of different multimedia materials on student performance and preference. Using textual descriptions, audio, games, and animations, Lin et al. (2013) explored the performance and reliability between these static and dynamic multimedia materials among 17 college students in Taiwan. The authors found that animated and game-based materials provided the most positive impact on students' performance and preference. These types of multimedia presentations were favored by 64.7% of the students interviewed. Static materials were perceived as beneficial by 23.5% of the students and audio materials by 11.8%. Animated materials were credited for helping students to understand complex information by allowing them to conduct mental representations and imaginary processing, while game based materials were credited for enhancing problem-solving skills by motivating learners to interact with different game scenarios that helped them to resolve the problems.

The impact of multimedia design and development to improve performance of middle school students has also been a subject of research. Ardaç and Unal (2008)

examined how changes in the amount of on-screen text influenced student learning from a multimedia presentation of coordinate geometry among seventh graders. Using pre-test, post-test and retention scores, Ardaç and Unal (2008) found that students with high memory for symbolic interpretations performed significantly higher than students with low memory when working with the whole-text version. The authors suggested that students with higher levels of memory have a higher capacity for encoding information. The ability to unite verbal and pictorial representations may explain the difference regardless the size of the presentation.

Chen and Sun (2012) also investigated how selected multimedia materials with low cognitive loads affected the emotions and learning performance of fifth graders with visual and verbal cognitive styles in Taiwan. Multimedia materials such as text and images, video, and animated interaction were chosen with intrinsic and extraneous cognitive loads. Using the Achievement Emotions Questionnaire (AEQ) suggested by Pekrun, Goetz, Frenzel, Barchfeld, and Perry (2011) as framework to measure students' emotions and ultimately learning and performance, the authors found that video-based multimedia material caused a superior learning performance for verbalizers while other dynamic multimedia material such videos and animations showed to be more beneficial for visualizers than static multimedia materials that solely contained text and images.

Foreign Language Grammar Instruction

According to Plass and Jones (2010), grammar instruction has been historically identified with two instructional approaches: the structural and the cognitive approach. Proponents of the structural approach assert that grammar is eminently teachable, and it

must be taught orally through drills and practice to finally allow students to respond to spoken prompts.

Koehler et al. (2011) identify this approach as deductive, in which grammar form is the main focus of the instruction, and it does not necessarily occur within a cultural or academic learning context. Despite helping students in learning the rules, the structural approach, also identified by Larsen-Freeman (2009) as the three Ps- present, practice, produce, has been highly criticized because students fail to apply their knowledge of grammar in real communication and when making meaning (Long & Doughty, 2009). Criticism of this approach is not new. Twenty years ago, the disassociation between theory and practice was already considered the most serious problem for this traditional approach to grammar (VanPatten, 1996).

The cognitive approach emphasizes that prior knowledge is activated to allow students to build the cognitive skills required to understand, process, and interact with language. Koehler, et al. (2011) identify this approach as inductive, in which grammatical functions are directly associated with words, structures, and images by using a dynamic immersion method.

Plass and Jones (2010) proposed a model of cognitive processing in second language acquisition to support the development of input, interaction, and output competencies. According to the integrated model, second language acquisition can be facilitated from comprehensible input in the forms of pictures and text. Figure 1 shows the integrated model as suggested by Plass and Jones (2010). The use of multimedia representations, according to the model, enhances the focusing attention and increases the likelihood of noticing, also known as apperception or noticing. During the second stage,

visual and verbal representation become intake by connecting text with images to form a pictorial model. The final product of this integrated process is a comprehensible output in the form of meaningful context to develop the ultimate goal of second language acquisition, which is the learners' communicative competency.

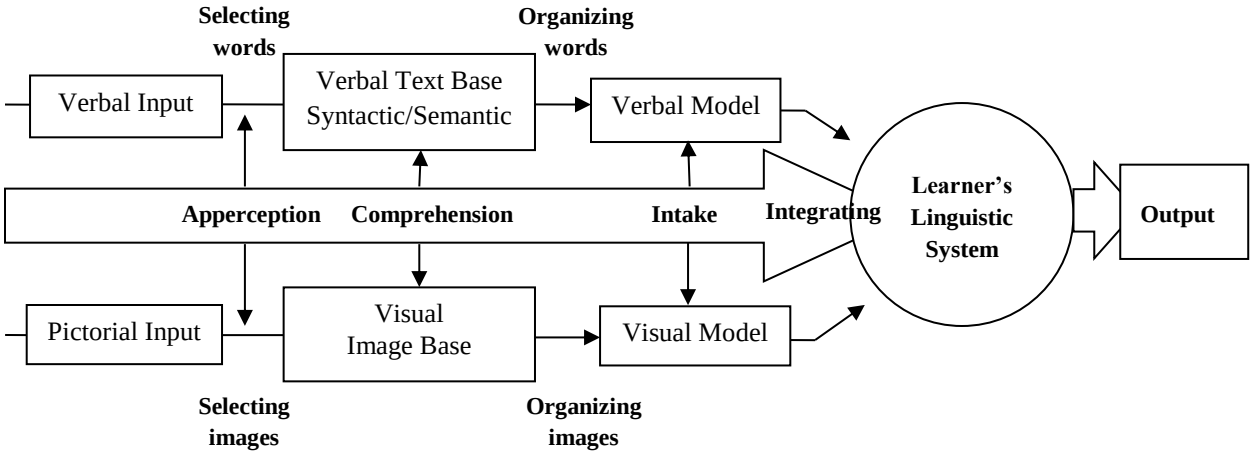

Figure 1. Integrated model of second-language acquisition with multimedia. Plass, J. L. & Jones, L. C. (2010). Multimedia learning in second language acquisition. In R.E. Mayer (Ed.), *The Cambridge handbook of multimedia learning* (pp. 467-488). New York, NY: Cambridge University Press. (Original work published 2005).

Video Podcasting Overview

Video podcasting is a term used to designate the transfer of video files in a digital format over the Internet (McGarr, 2009) via publishing and subscription models such as Really Simple Syndication (RSS), an XML-based transmission system (Ho & Chou, 2009) with the purpose of providing an audiovisual experience to users (Copley, 2007). An essential attribute of video podcasts is that these files are available for downloading from the Internet into personal computers and portable or digital devices (Hur & Suh,

2012; Coutinho & Mota, 2011; Sprague & Pixley, 2008). These devices, such as smart phones, iPods, tablets, personal digital assistants (PDAs), and personal computers serve as players to the transferred files (Litchfield et al., 2010). Video podcasting, which is the main focus of this review, has been more often referred to in the literature as podcasting, a broader term that not only includes video files, but audio files as well (Hur & Suh, 2012; Heilsen, 2010). Sprague and Pixley (2008) also suggest that podcasts are not limited to just audio files. Other media formats, such as video and text, are also considered a form of podcasts. Besides the use of audio, video, and text, Coutinho and Mota (2011) also suggest the inclusion of images. Even some forms of Internet-based radio shows are also considered podcasts (Piecka, Studnicki & Zuckerman-Parker, 2008). Ozdener and Gungor (2010) suggest that podcasting cannot be used as a blanket term and should be exclusively used for audio files, while video podcasting should be used for video files.

According to Kay (2012), the first references to the use of video podcasts can be dated as far back as 2002 with terms such as audiographs, video streaming, and webcasting. Two years later, in 2004, the word podcasting was introduced as a result of combining two different words: iPod, Apple's portable media player, and broadcasting (Ho & Chou, 2009). A year later, in 2005, with the launch of YouTube and the explosion of video files over the Internet, the term video podcast was also introduced (Kay, 2012). Video podcasting is also referred to in the literature as vodcasting and screencasting. The prefix 'vod' derives from the expression Video On Demand, implying the capture of video through a video camera, while screencasting derives from capturing the computer user's actions that are in most cases accompanied by audio (Rocha & Coutinho, 2010).

The explosive development of video files over the Internet has been attributed to the launch of YouTube in February of 2005, and to the increase and availability of bandwidth (Kay, 2012). Piecka et al. (2008) found that in 2005, within just five months of YouTube's launch, the number of video files available on YouTube went from three million to 20 million files. Originally created with the purpose of uploading, viewing and sharing videos for entertainment, YouTube received more than 100 million views per day in 2006. YouTube is now also a free source of countless educational videos that in 2011 received more than three billion visits per day (Kay, 2012) and more than four billion in 2012 (Oreskovic, 2012). Making reference to the introduction of high speed Internet in homes and schools, Brenner and Rainie (2012) reported that the number of American households that have broadband connections at home has risen steadily from 42% in 2006 to 65% in 2012. Other factors that Piecka et al. (2008) suggest as contributors for this explosive development are the pervasiness of the Internet, the given nature of multimedia PC, the commonness of MP3 playback devices, and the undistinguishable, streaming and downloading of media content.

Even though all video files found over the Internet cannot be catalogued as video podcasts, some studies suggest that the number of video podcasts available has emerged as a phenomenon that is growing at an exponential rate. Tinker, Horwitz, Bannasch, Staudt, and Vincent (2007) found that over 30,000 podcasts were available online in 2007. Within a year, that number was tripled. Sprague and Pixley (2008) indicate that in 2008, the iTunes store had over 100,000 podcasts available on a wide variety of educational subjects. This number does not include all the other networks that also host educational video podcasts.

Another factor that evidences the growth of video podcasting in education is the number of peer-reviewed articles that have been written since 2006. According to Kay (2012), 53 new articles about the use of video podcasts in education have been published. It is interesting to note that the predominant sample population among the 53 studies involves undergraduate students with 38 studies, while only three studies focus on middle school students.

Affordability and accessibility emerged as two critical elements that have contributed to the popularity of this technology in education. Criswell (2008) indicates that podcasting does not require expensive equipment. The required software and equipment can cost little to nothing. Tinker et al. (2007) suggest that most teachers already possess most of the required equipment that may consist of a computer, headphones, a microphone, and software like Audacity, which can be downloaded for free. Tarasiuk (2009) asserts that students can record their podcasts by simply using a laptop computer and a microphone. Concerning the microphones, Sprague and Pixley (2008) indicate that they can either be the built-in microphone most computers or laptops have, or an external one that can be found for a very low price.

In terms of accessibility, Coutinho and Mota (2011) found that direct interaction via the Internet is a way to find and access video podcasts on a wide variety of subjects and topics. Video podcasts can be found on many online directories such as iTunes University, the Education Podcast Network, Podscope, Podcast Alley, Yahoo! Podcasts, and others (Sprague & Pixley, 2008). In addition to these specialized networks, many teachers and students have also created their own channels with thousands of video podcasts to supplement their curriculums. Teachers at Massaponax High School in

Table 2
Types of Video Podcasts

Category	Sub-Category	Characteristics
Purpose	Lecture-based	Entire lectures that can be recorded for future references and review.
	Enhanced	Capturing of PowerPoint slides in a video format with an audio explanation.
	Supplementary	This type of video podcasting may help broaden or deepen student comprehension in the form of summaries of class lectures or textbook material. They may include administrative support.
	Worked Examples	Video explanations that may help students solve specific problems, often in the areas of science or mathematics.
Segmentation	Non-segmented	Entire lectures that can be watched using player controls to enact and change or adjust the process of watching the video podcast.
	Segmented	Video podcasts that are split in smaller portions to be searched and viewed based on the user's needs.
Pedagogy	Receptive Viewing	Students can view the recording in a passive manner. Desired segments can be reviewed slowly. This type of video podcast is the most popular.
	Problem-solving	Video podcasts deliver information and are designed to clarify, articulate and assist learners in problem-solving.
	Created video podcasts	Learning takes place when students investigate, collaborate, and create video podcasts. The student-created approach is uncommon.
Academic Focus	Practical skills	This type, also called specific problem, is regularly short in length or segmented and represents a common type of video podcasting.
	Conceptual	This type of video podcasts targets higher level concepts. The opposite of practical skills, this form tends to be long and may be segmented.

Note. This table summarizes the types of video podcasts developed by Kay (2012).

Virginia, for example, have created podcasts for reviewing purposes (Sprague & Pixley, 2008), while middle school students at Longfellow Middle School in La Crosse, Wisconsin have been producing podcasts in writing classes in conjunction with other

subjects such as social studies, science, and math (Davis & McGrail, 2009). Our City Podcast is another example of students creating and sharing podcasts with other students around the globe about the places in which they live (Tinker et al., 2007).

Grounded in the literature over the past six years, Kay (2012) proposed a categorization of video podcasts that significantly varies in purpose, segmentation, pedagogical strategy, and academic focus. Table 2 offers a summary of these four types of video podcasts. Notice that video podcasts can also be classified in sub categories that, according to Kay (2012), have been stabilized over the last six years.

Podcasting and Video Podcasting Research

Although podcasting, including all of its forms, is a fairly new technology, it has gained a considerable amount of attention over the last few years (Blok & Godsk, 2009). There is an ever-growing body of literature that describes the multiple uses of podcasting and video podcasting in teaching, marketing, and promoting lifelong learning among administrators, instructors, and students, particularly in higher education (Lomicka & Lord, 2011). Four literature reviews that targeted the use of podcasting in education have been published in the last four years (Hew, 2009; McGarr, 2009; Heilsen, 2010; Kay, 2012).

Hew (2009) found that most of the 11 peer-reviewed articles examined were descriptive studies. Even though they focused solely on audio podcasts, they provided valuable insights that can also be considered with video podcasts. The opportunity to review missed concepts or material not understood during class was considered the main

benefit of this technology while podcasts were most commonly used for either lecturing or supplementing course materials.

McGarr (2009) examined seven peer-reviewed articles on the use of audio podcasting and video podcasting in higher education. This theoretical review focused mainly on the descriptive results and did not provide an analysis of each type of podcast nor their contributions in education as well as their benefits and challenges.

Heilsen (2010) also examined 13 peer-reviewed articles on the use of audio podcasting and video podcasting in education. Not considered a comprehensive review, this paper found limited evidence in support of learning gains by using podcasting in education, but concluded that affective and cognitive attitudes were positive.

Kay (2012) provided a comprehensive review of research on video podcasts. The article asserts to be a systematic review of over 50 peer-review articles from 2002 to 2011. Focusing exclusively on video podcasts, this review offered a comprehensive analysis of the benefits and challenges while explored opportunities to expand forthcoming research. This review revealed critical findings about the focus of video podcast research in the last 10 years and context of video podcast use. Table 3 offers a summary of the focus of video podcast research. Notice that from a total of 53 studies on video podcasting, the use of video podcasts in education occupied the central focus of research while video podcast pedagogy was the least researched. According to Kay (2012), the diversity on focus made it impossible to conduct a meta-analysis study.

Table 3
Focus of Video Podcast Research

Number of Studies	Focus
n=30	Use of video podcasts
n=11	Comparison of video podcasts with other teaching strategies
n=5	Evaluation of the high quality of video podcasts
n=3	Literature reviews
n=2	Creation of video podcasts
n=1	Video podcast pedagogy

Note. This table summarizes the focus of video podcast research found by Kay (2012).

The leading sample population examined by Kay (2012) in the 53 studies consisted of undergraduate students. Table 4 offers a summary of the context of video podcast use in terms of population, which also reveals that only three studies focused on middle school students.

Table 4
Context of Video Podcasts Use: Population

Number of Studies	Sample Population
n=38	Undergraduate students
n=8	Graduate students
n=4	Teachers
n=4	Secondary school students
n=3	Middle school students
n=2	Elementary school students
n=1	Professionals

Note. This table summarizes the sample population on video podcasts research found by Kay (2012).

In terms of subject areas, Kay (2012) found that science and technology was dominant with 17 studies. Table 5 summarizes the main subject areas found in the 53 studies reviewed.

Table 5
Context of Video Podcasts Use: Subject Areas

Number of Studies	Subject Areas
n=17	Science and technology
n=15	Arts
n=11	Health
n=6	Variety of subject areas
n=4	Mathematics
n=3	General education

Note. This table summarizes the subject areas of video podcast research found by Kay (2012).

Concerning middle schools, Piecka et al. (2008) reported that teachers coming from the content areas of English language arts, foreign languages, science, social studies, music, and cross-curricular subjects are the most interested in adopting video podcasting. Coutinho and Mota (2011) reported a similar finding, with visual and technological education as the most suited disciplines for using this tool, followed by foreign language and natural sciences.

Although research linking video podcasting to learning outcomes in middle school is still limited, the review has found that students in general agreed on the value of video podcasts as a learning tool (Hew, 2009; McGarr, 2009; Heilsen, 2010; Popova & Edirisingha, 2010; Kay, 2012; Hur & Suh, 2012). This finding has been persistently questioned in the literature reviewed for the use of empirical research methods that are

merely based on questionnaires and interviews without conducting proper and suitable experiments that answer the fundamental question about how video podcasting can improve teaching and learning in middle schools (Hur & Suh, 2012). According to Hew (2009), the only use of empirical research on the use of video podcasting as a learning tool might bring a poor theoretical rationale and justification as a result.

Based on data obtained from a survey and informal talks with 11 Korean students with limited English proficiency who were enrolled in English as a second language classes, Hurt and Suh (2012) found that students also valued the use video podcasts for lesson reviews, test preparation, and homework completion. Auditory learners have been identified as the type of learners that are most benefited by using podcasting (Piecka et al., 2008). The use of this technology allows learners to learn best by hearing information at their own pace. Piecka et al. (2008) suggest that the power of the human voice is a key factor that goes beyond an audible instructional technology that also helps introverted and unmotivated students improve performance by reducing shyness, decreasing student anxiety, and increasing motivation. Another group of students that have been identified as beneficiaries when using video podcasts are those with a moderate to weak short-term memory. De Boer, Kommers, and Brock (2011) found that students with weak short-term memory tend to review video podcasting more often than students with a stronger short-term memory.

Conducting an empirical study with 20 Portuguese students from a 6th grade music education class, Coutinho and Mota (2011) asked students for three adjectives that best characterized their experience with podcasting. Overwhelmingly students expressed their

positive experience by using adjectives such as interesting, amusing, good, educational, cute, and fun.

Patterns of viewing behavior have also emerged from the literature review. Heilsen (2010) reported that students favored viewing video podcasts outside school, preferably in a quiet room and in front of a computer. Hew (2009) also found that students preferred to use their personal computers rather than using mobile devices. Another study has found that podcast content may have an influence on device selection (Walls, Kucsera, Walker, Acee, McVaugh, & Robinson, 2010). Students have preference for mobile devices to watch supplementary video podcasts, while lecture videos are mostly viewed on personal computers. The effectiveness of viewing a video podcast on a mobile platform can be, according to McGarr (2009), limited by the cognitive abilities needed to process, deconstruct, and interpret information.

Another behavior with respect to viewing video podcasts that emerged from the literature is that students opt to view video podcasts in preparation for exams (Heilsen, 2010). In this regard, Chester, Buntine, Hammond, and Atkinson (2011) found that more than half of the 273 students interviewed had used the podcasts for examination preparation. Other reasons found by Chester et al. (2011) for video podcasts use include catching up on missing information, reviewing material, and revisiting complex material.

The preferred viewing style of a student, which is defined by De Boer et al. (2011) as the viewing style that carries the utmost recurrence, has been recently considered as an important variable to understand video podcasting and how these styles potentially influence the learning outcomes. According to De Boer et al. (2011) the preferred viewing style can be influenced by many variables such as: (1) the

segmentation or not segmentation of the video podcasts, (2) the cognitive needs of the user, (3) the innate cognitive abilities of the user, and (3) the low or high short-term memory of the student. De Boer et al. (2011) also suggested that these none limited factors have a close correlation with four distinctive styles as shown on table 6.

Table 6
Viewing Styles and Viewing Behavior

Viewing Style	Viewing Behavior
Linear	When a student watches a complete video podcast once
Elaboration	When a student watches a complete video podcast twice
Maintenance rehearsal	When a student watches part of a video podcast repeatedly
Zapping	When a student skips through a video podcast and watches brief segments

Note. This table describes viewing styles and behaviors as suggested by De Boer et al. (2011).

The viewing behavior of 50 undergraduate students in the Netherlands revealed that cognitive need and student abilities were the main factors for some students to change their viewing style and that not all students had a preferred viewing style for watching video podcasts (De Boer et al., 2011). The strategy-oriented approach observed by de Boer et al. (2011) was the source to propose the term *viewing strategy* when students show the ability to switch among viewing styles.

When considering the affective attitudes toward video podcasts, Kay (2012) analyzed previous research that considered this aspect to conclude that the students' feelings or emotions were largely positive. Far from opinions or beliefs, this finding is significant since affective attitudes, according to Kara (2009), have a positive influence on the students' behaviors and consequently on their performance. Three positive

affective attitudes emerged from the literature reviewed: (1) students considered that watching video podcasts was an enjoyable experience (Vajoczki, Watt, Marquis, & Holshausen, 2010), to the point that students indicated that video podcasts were their preferred format over audio podcasts, handouts, or any other supplementary lecture materials (Copley, 2007), (2) students considered that video podcasts were satisfying and quite useful (Traphagan, Kusera, & Kishi, 2010), to the point that they attended class less frequently than students who preferred to attend the lectures, and (3) students considered that video podcasts were motivating (Bolliger, Supanakorn, & Boggs, 2010). Even though some aspects such as gender, class standing, and the quality of the video podcast can affect student motivation, Bolliger et al. (2010) found that participants of the study were overall highly motivated by the use of the video podcasts. Confidence and attention also received high ratings as subcategories.

Among the reasons cited by Kay (2012) for increased motivation are the prolonged engagement, significance, and the enthusiasm of producing video podcasts for their peers. Fernandez, Simo, and Sallan (2009) found that students were interested in video podcasts when the content was intellectually stimulating, and they wanted to watch an exceptional lecture again. Trapagan et al. (2010) argued that convenience, accessibility, and the flexibility of using video podcasts helped students reduce their anxiety, particularly before testing, and helped students build connections with the teacher and other students.

Positive cognitive attitudes with regards to video podcasts have also been reported in the literature. Kay (2012) examined over 22 studies to conclude that about 85% of the findings were positive. A significant number of cognitive attitudes with regards to video

podcasts were detected and summarized as follows: (1) students found video podcasts useful and very effective to improve their learning process, (2) students felt that video podcasts helped them improve their reasoning, creativity, cooperation, communication, and technology skills, and (3) students credited their positive performance results to the use of video podcasts.

The visual nature of the video podcasts has also been analyzed in the literature with respect to improving understanding. It is significant that 20 out of 21 students interviewed by Hill and Nelson (2011) strongly agreed that video podcasts helped their learning generally. Concerning visual learning associated with the video podcasts, half of the respondents agreed that the visual images helped them to retrieve information, to close knowledge gaps, to do better during testing by triggering their memory and helping students to outline structured answers.

The impact of video podcasts on learning performance in higher education has been generously reported with fewer reports on the effects on middle school students. Boster, Meyer, Roberto, Lindsey, Smith, Inge, and Strome (2007) conducted a quasi-experimental study to determine the casual impact of video podcasting on mathematics examination performance to a group of 3,019 middle school students from a large school district in the Southwestern United States. The results showed that the mean difference in mathematics examination performance of sixth and eighth-grade students who used video podcasts was significantly higher than the mean in mathematics examination performance of students who did not use the video podcasts. The authors found that scores on the posttest examination were close to one-fifth of a standard deviation. Boster et al. (2007) did not identify the factors that contributed to the gain in performance, but

Kay (2012) reported that performance gain in higher education was partially dependent on two factors: (1) previous knowledge on the subject, and (2) the type of podcast used. Considering the type of podcasts used, Zhang, Zhou, Briggs, and Nunamaker (2006) found that students who watched segmented video podcasts showed a significant improvement in learning performance in comparison with students who watched non-segmented video podcasts. Hill and Nelson (2011) suggested that video podcasts helped students improve their performance when facts were required, while comprehension was not strengthened by watching video podcasts.

Using Video Podcasts as a Learning Tool

The use of video podcasting as a learning tool in middle schools has recently been reported in the literature. Kay (2012) found that video podcasts have become a great potential tool to support student learning. He argued that in recent years, video podcasts have turned into a natural source of information, motivation, and inspiration for students and peers. Hur and Suh (2012) conducted an empirical study with English language learners to examine the effective ways to integrate video podcasting for language proficiency development. After surveying 11 Korean students with limited English proficiency, they found that students favored the use of video podcasts to review daily lessons and complete homework assignments properly.

Based on observations of the band director at Decorah Middle School in Decorah, Iowa who used video podcasting as a tool to enrich student learning in the music class, Criswell (2008) reported the following creative ways of using this tool:

1. For students to create a visual and auditory documentation of their performances and academic achievement.
2. To showpiece solos and ensembles that cannot be performed into a major concert.
3. As a way for students to research and create video projects on specific topics.

Davis and McGrail (2009) reported on the use of video podcasting to assist students in proofreading revision. They argued that as this technology engages hearing and seeing, the use of the teacher's voice helps students find where their writing was not understood or represented what they intended to say. Students reported that as a result of using video podcasts for proofreading revision, they were proud of their new understandings and encouraged to make meaning clearer to other readers. Piecka et al. (2008) suggested several ways of using video podcasting as a learning tool in middle schools (see Appendix A).

Coutinho and Mota (2011) suggested the following advantages of using video podcasting in middle schools as a learning tool:

1. The video podcast provides a new strategy for teaching and learning that promotes a greater interest in learning.
2. The video podcast is a tool that adjusts to learning at different rates.
3. The video podcast fosters meaningful learning in and outside the classroom.
4. The video podcast allows students to interact between the acts of talking and listening by taking distance from the mere act of reading.
5. The video podcast enables collaborative learning as students are challenged to work in groups to create high quality material.

6. The video podcast promotes a greater interest in students as they prepare a world-class text to be heard by the teacher, peers, or other students around the world.

Even though no research was mentioned by Coutinho and Mota (2011) to support these advantages, other studies present similar conclusions about the benefits of using video podcasting in education (Popova & Edirisingha, 2010; Kay, 2012; Hur & Sun, 2012).

Benefits of Using Video Podcasting in Education

Video podcasting has been shown to offer numerous benefits to students. Even though most of the current literature on this topic refers to the benefits on higher education, the interest for identifying the benefits in K-12 has grown exponentially in the last few years.

While some of the most recent findings in terms of the benefits seem to apply exclusively to K-12 setting, the current body of knowledge provides evidence of benefits that are common in both settings. Improving learning has been reported as the most common benefit in the literature, followed by allowing students to learn when, where, and the pace of their choice, as well as helping students to change study habits (Kay, 2012). Popova and Edirisingha (2010) also found common benefits, such as the flexibility of this technology, the support that video podcasting provides for teaching and learning in a variety of contexts and for a variety of purposes, and the affordability of student-generated content to achieve higher levels and creative learning.

Concerning the benefits of using video podcasting in middle schools, Tarasiuk (2009) conducted research on students in this setting using video podcasting to encourage them to interpret the meaning of selected writers to later apply these insights to their own poems. The study revealed that poetry podcasts helped students improve their ability to interpret meaning and promoted an appreciation of making meaning through their own words, music, and images. Criswell (2008) reported that by using video podcasting in music classes, teachers can turn centered activities into interactive and cross curricular lessons. The study also suggested that video podcasts may enhance lesson units by providing more opportunities to students to experience and retain content, assess their own performance, and research and learn about famous composers.

Video podcasting has also been credited for helping students to improve their logic and fluency. Davis and McGrail (2009) argued that as video podcasting engages hearing and seeing senses, it creates a multisensory process that promotes learning.

Student-generated podcasts emerged from the literature as a technology that promotes active learning through student engagement with content for the goal of concept attainment with knowledge creation. Crow (2009) suggested that the level of engagement in student-generated podcasts is perhaps the greatest benefit that this technology provides to students. Sprague and Pixley (2008) also reported about the benefits of creating video podcasts. They argued that students learn to communicate successfully and speak effectively when they create the podcasts.

Piecka et al. (2008) conducted a project with the purpose of understanding if the development and use of student-generated video podcasts had effect learning in a seventh-grade grade science classroom. The study revealed several insights about other

potential benefits of using student-generated video podcasts in middle schools (see Appendix B).

Regardless of who the creator of the video podcasts is, Sprague and Pixley (2008) found that students who have access to this technology can extend the school day and be more active in their own learning since video podcasting provides a learning environment that can be meaningful and challenging. They also found that the latest developments on video podcasting can be particularly useful for language development. In this regard, the study suggested that students of English as a second language might learn English quicker as a result of using video podcasting. In order to examine effective ways to integrate video podcasting for the development of language learning, Hur and Sun (2012) conducted a study among English language learners in a third and fourth grade classroom. The authors found that video podcasts provided multiple listening opportunities to explore and experience the target language by listening to native speakers in authentic contexts as well as outside the classroom. With the advantage of controlling the speed of playback, rewinding, or pausing as needed, video podcasting also provides support to students with a wide range of abilities and skills.

Rosell-Aguilar (2007) also reported that language learning is a discipline that is likely to benefit from video podcasting. The authors identified the following benefits for language learning:

1. Video podcasts help students learn the history and culture of the target language.
2. Video podcasts help students identify new vocabulary and grammar structures.

3. Teachers can use video podcasting for a great variety of teaching materials that requires multiple approaches in language learning. It also provides access to a huge number of authentic inputs.
4. Spoken words help auditory or verbal learners clarify meaning.
5. Video podcasting can be useful to language learners as they provide visual materials and audio resources.
6. The combination of visual and audio materials can help learners access information more effectively.

Challenges of Creating and Using Video Podcasting in Education

Even though video podcasting has received favorable reviews with a remarkable growth in K-12 in the last few years (Challoo & Livingston, 2008), some challenges with respect to the use of this technology have emerged from the literature reviewed. According to Kay (2012), the challenges for creating and using video podcasting in education can be summarized in four areas that include technical issues, student preferences, student awareness, and the students' busy schedules. From the four areas, technical issues emerged from the literature as the most critical challenge. After examining the preferred mode of use and satisfaction with video podcasting among 273 undergraduate students in Australia, Chester et al. (2011) found that excessive file size and difficulties with finding how to get video podcasts to work were among the major concerns for not using this technology. Hill and Nelson (2011) also found that downloading speed was among the major concerns reported by students who used video podcasting to support the learning of exotic ecosystems. This concern and the display

size were mainly associated with the use of old devices. Not having a mobile device was also reported in the literature. McCombs and Liu (2007) found that non-podcasting users simply did not use the podcasts for not having a mobile device.

Concerning technical issues in middle schools, Sprague and Pixley (2008) found that the most difficult part in creating a video podcast was learning how to use an editing software program. Challenges with respect to the audio, such as background noise and frequent disruptions during taping, were also informed. Similar findings with respect to audio were reported by Coutinho and Mota (2011). The stabilization of the volume and knowing how to keep sound inputs in the same level as they were recorded directly from the microphone were the main difficulties found by students on the technical features of the software used.

The student's preference was also a significant challenge identified in the literature. When comparing the benefits of attending a lecture or watching a video podcast, some studies have suggested that students preferred to attend a lecture. O'Bannon et al. (2011) conducted a study among 69 future teachers attending a class focused on the integration of technology into the K-12 curriculum at the University of Tennessee. The study revealed that 67% of the participants watched most of the 18 episodes, but as the semester progressed, 30% did not watch the last three video podcasts. Students who did not watch the video podcasts suggested that episodes were irrelevant to their learning goals. They argued that video podcasts simply read the same PowerPoint slides used during the lecture, and for that reason, students did not find the video podcasts helpful. Students who did not watch the video podcasts also argued that video podcasts did not allow them to ask and receive immediate clarification on issues. Trying to assess

the impact of video podcasting on lecture attendance, Chester et al. (2011) found that 50% of the 273 students interviewed chose not to use the video podcasts. Among other reasons, students argued that they were not sufficient to support their needs and preferred to rely solely on the face-to-face lectures.

Not having enough time to create and watch the video podcasts was also reported as a challenge for using this technology. Conducting quantitative and qualitative research concerning the employment of video podcasts to support learning and teaching, Hill and Nelson (2011) found that 13 out of 22 college students cited a lack of time as the main reason for not watching the latest video podcasts. Although the study did not provide further details about the reasons behind the lack of time, Winterbottom (2007) revealed that having to spend so much time in finding and watching the video podcasts might be a reason behind this concern. Winterbottom (2007) conducted a study among students taking an environmental science class at the University of Stirling, in the United Kingdom to explore how students experienced the use of video podcasting as an instructional tool. Even though 85% of the interviewed students responded positively, 7% responded negatively. Some students reported that video podcasting was a time consuming activity for them. Pausing and rewinding the video podcasts were of significant concern, including the time in finding the material.

Although no research was used to support the following report, Sprague and Pixley (2008) suggested that some middle school teachers might find the creation of video podcasts a challenging issue mainly because they do not have the time to produce such material. The report suggested the following four reasons for many middle school teachers not embracing this technology:

1. Deciding the topics
2. Conducting the necessary research
3. Writing the script
4. Practicing before recording
5. Editing and uploading to a server

Less prominent, but also reported in the literature was the student's awareness about the availability of video podcasts as a resource material for their classes. Chester et al. (2011) reported that 44% of students participating in a study at a large Australian university (n=20) were not aware of the existence of the recordings.

Summary

The literature on the use of video podcasting with the purpose of promoting student achievement in education revealed a great deal of its use in higher education with a very young literature in middle schools. This finding was consistently reported throughout the literature reviewed with a recurrent suggestion of expanding the sample population to other settings, such as middle schools, to determine, among other areas, how different this technology might impact middle school student's learning (Kay, 2012; Yerrick & Johnson, 2009; Challoo & Livingston, 2008).

The first section of the literature reviewed provided an overview of the video podcast technology: its definition, developments in education, equipment, access and types of video podcasts. Commonly referred to in the literature as podcasting, other formats different than just audio files are also considered a form of podcasts. For the purpose of this review, the video format, specifically referred to as video podcasts, is the

main focus of the review. Despite being a new technology, the review found that video podcasting has grown at an exponential rate. The increase of bandwidth, the growth of broadband connections, the pervasiveness of the Internet, the explosion of portable and digital devices that serve as players to the transferred files, and its accessibility as well as affordability have emerged as factors that have contributed to the popularity of this technology in education. This growth has been evidenced by the number of peer-reviewed articles that have been published in the last few years. With more than 53 studies between 2006 and 2012, most of them dedicated to the use of video podcasts in higher education, this review found that only three focused on the use of this technology in middle schools.

The second section uncovered what has been researched and known in the body of knowledge concerning focus, population, context of use, subject areas, viewing behavior, cognitive and affective attitudes, impact on learning performance, and the factors that contribute to losses or gain in performance of video podcasts in education. These findings were based on four literature reviews from 2009 to 2012 (Hew, 2009; McGarr, 2009; Heilsen, 2010; Kay, 2012).

Most of the studies on podcasting and video podcasting were descriptive, and even though most of them refer specifically to the use of podcasting in education, they may provide valuable insight that can be considered with video podcasts. Kay (2012) categorized video podcasts into four types that vary in purpose, segmentation, pedagogical strategy, and academic focus. Concerning the focus of research, the use of video podcasting in education occupied the central attention, while video podcast

pedagogy was the least researched. It is also revealed that the diversity of focus of the studies on video podcasting made it impossible to conduct a meta-analysis.

Most of the reviewed research on video podcasts focuses its attention on higher education, with only three studies on middle schools. Specifically related to the use of video podcasting in education, science and technology dominate the subject areas in higher education, while English language arts, foreign languages, and science are the subject areas that are the most interested in adopting video podcasting.

According to Hur and Suh (2012) video podcasting is valued by the students for providing help with lesson reviews, test preparation, and homework completion, while Heilsen (2010) reported that students favored viewing video podcasts outside school. Concerning device of preference, Hew (2009) reported that the personal computer was preferred to viewing video podcasts over mobile devices.

Concerning viewing styles, De Boer et al. (2011) suggested a list of four that include: linear, elaboration, maintenance rehearsal, and zapping. Cognitive need and the student's abilities emerged as the main factors for students selecting a particular style while making clear that not all students had a preferred viewing style.

Three positive affective attitudes toward watching video podcasts that include an enjoyable, satisfying, and motivating experience emerged from the literature reviewed, while several cognitive attitudes were detected and summarized on this review as useful and very effective to improve learning performance, reasoning, creativity, cooperation, communication, and technology skills. Kay (2012) reported that students credited their positive performance results to the use of video podcasts.

While learning performance has been generously reported on higher education, research pertaining to K-12, and specifically middle schools, is limited. Boster et al. (2007) reported that scores of middle school students who used video podcasts were higher than students who did not use them. This finding did not identify the factors that contributed to the gain performance, but Kay (2012) suggested that previous knowledge on the subject and the type of podcast used were factors that contributed to performance gain in higher education.

The third section reports on the use of video podcasting as a learning tool in middle schools with the inclusion of the perception and advantages of the use of this technology. Hur and Suh (2012) reported on the use of this tool to review daily lessons and complete homework assignments properly. Criswell (2008) reported three creative ways of using video podcasting in the music classroom while Davis and McGrail (2009) also reported on the use of video podcasting to assist students in proofreading revision. This review also reported a list of 18 ways of using video podcasting as a learning tool in middle schools as reported by Piecka et al. (2008). This section concluded with a list of eight advantages of using video podcasting in middle schools reported by Countinho and Motta (2011).

The fourth section presents a comprehensive list of benefits of using video podcasting in education reported on the literature. Improving learning arose as the most important benefit, followed by the flexibility that provides this technology. Improving the ability to interpret meaning and helping students improve their logic and fluency also emerged as critical benefits. Student-generated podcasts are particularly credited for promoting active learning due to the high level of engagement. Piecka et al. (2008)

reported a list of 18 potential benefits of using student-generated video podcasts in middle schools. Language learning is also reported in the literature as a discipline that is likely to benefit from video podcasting. Rosell-Aguilar (2007) suggested a list of six benefits for language learning.

The last section reported on some of the challenges with respect to the use of this technology. Kay (2012) summarized such challenges in four areas that include technical issues, student preferences, student awareness, and the student's busy schedules. Technical issues were reported as the most critical challenge. Among the technical issues, those that are related with audio were the most referred. Issues that include background noise, continual disruptions, stabilization of volume, and level of inputs were reported on the literature. Hill and Nelson (2011) found that downloading speed, and display size were among other concerns, the main reported by students.

Chapter 3

Methodology

This chapter outlines the methodology through which the current research was accomplished. Research methods are identified along with the rationale for the application of specific procedures. It also addresses how data were collected and analyzed.

Overview

The use of video podcasting in education has been specifically associated with helping students in gaining deeper learning and improving student performance as they can combine visual and auditory representations into a single multimedia presentation (Walker et al., 2011). However, very few studies of video podcasting in middle schools have gone beyond the passive mode of watching teacher-produced content to one that promotes active learning by students creating the video podcasts (Lee et al., 2008).

The problem identified was the need to investigate the effects of video podcasts created by students to promote foreign language grammar acquisition at the middle school level and find how students described such experience. In order to address this problem, this investigation compared the effects of video podcasts created by students to promote foreign language grammar acquisition to students who were given traditional instruction.

Research Design

Creswell and Plano Clark (2011) suggest that the use of one data source is not sufficient when the components of the research questions entail the sum of quantitative and qualitative strands. In such cases, it is necessary to use more than one source that required the use of mixed methods in order to address the different types of questions. Therefore, a two-phase design that included quantitative and qualitative methods of research was selected.

The explanatory sequential design, which is a mixed methods that uses a qualitative strand to explain initial quantitative results (Creswell, Plano Clark, Gutmann, & Hanson, 2003), was used. The selected mixed methods, also known as the explanatory design (Creswell & Plano Clark, 2011), or qualitative follow-up approach (Morgan, 1998), reflects the appropriate interaction, priority, timing, and mixing for the research and made the study manageable and simple to implement and describe while ensuring that the resulting design was rigorous, persuasive, and of high quality (Creswell et al., 2003). Figure 2 shows the prototypical version of the explanatory sequential design as proposed by Creswell and Plano Clark (2011).

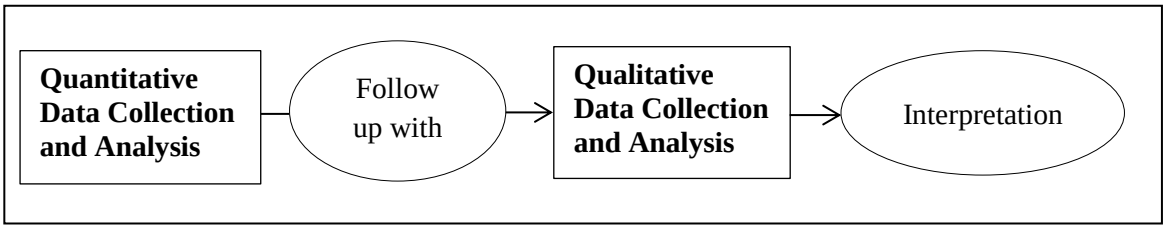

Figure 2. Prototypical version of the explanatory sequential design by J.W. Creswell, and C.V.L. Plano Clark, 2011, *Designing and Conducting Mixed Methods Research*, 2nd edition, p. 69. Copyright 2011 by SAGE Publications.

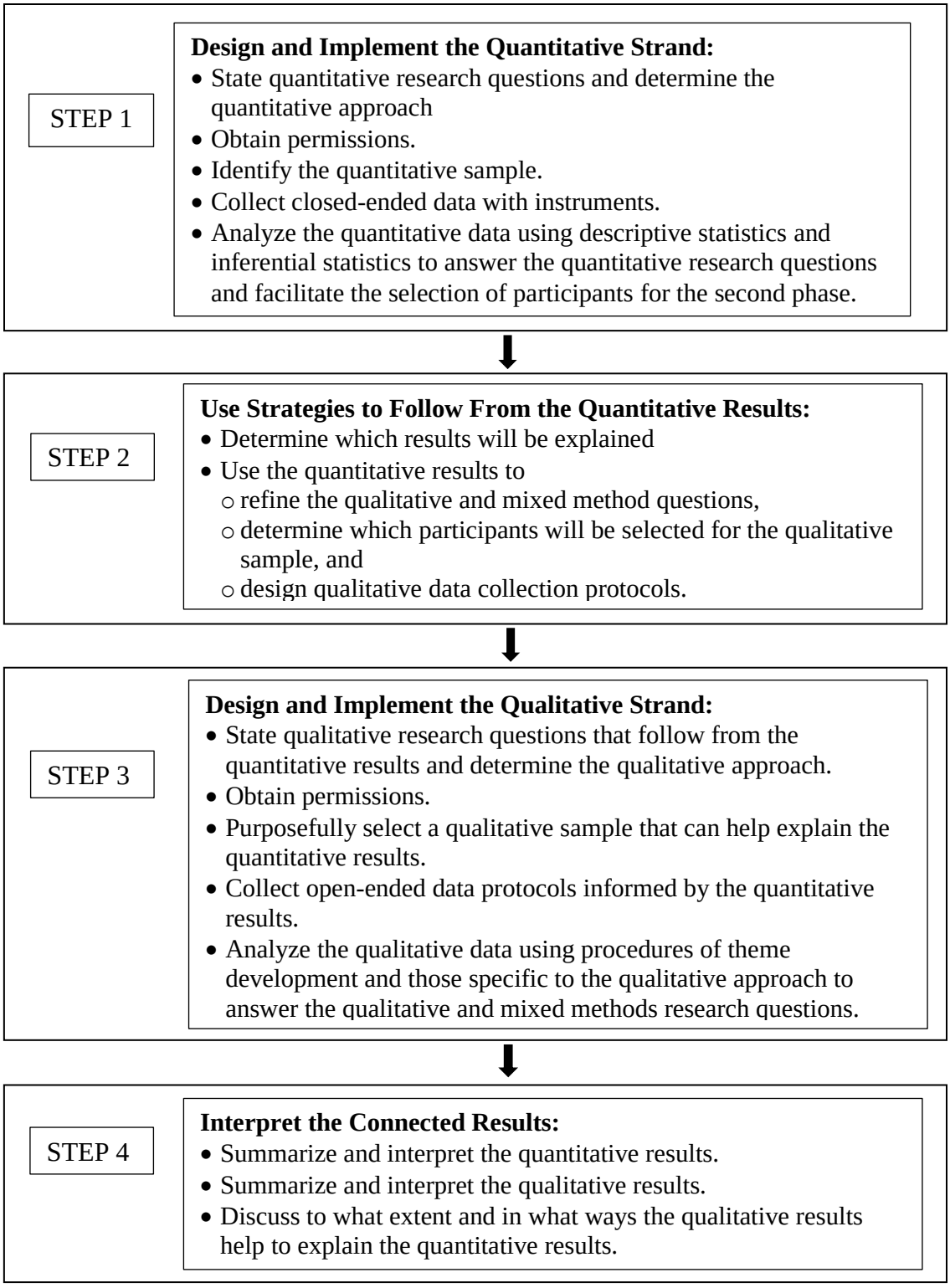

Figure 3. Flowchart of the basic procedures in implementing an explanatory sequential design by J.W. Creswell, and C.V.L. Plano Clark, 2011, *Designing and Conducting Mixed Methods Research*, 2nd edition, p. 84. Copyright 2011 by SAGE Publications.

The explanatory sequential design starts with the collection and analysis of quantitative data. In this approach, the qualitative phase depends on the quantitative results. Figure 3 shows the flowchart that describes the procedures in implementing the design as suggested by Creswell and Plano Clark (2011).

During the quantitative phase, a double- pretest and posttest design approach to a quasi-experimental design were used to collect quantitative data (Bell, 2010). The double-pretest design is diagrammed as shown on Figure 4.

NR	**O_1**	**O_2**	**X**	**O_3**
NR	**O_1**	**O_2**		**O_3**

Figure 4. The double-pretest design as descripted by W.R. Sadish, T.D. Cook, and D.T. Campbell, 2002, *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*, p. 145. Copyright 2002 by Wadsworth Cengage Learning.

In this design, NR represents non-randomization, O_1 represents pretest 1, O_2 represents pretest 2, X represents the treatment implemented, and O_3 represents the posttests (Cohen, Manion, & Morrison, 2011). According to the design, the control group and the experimental group complete pretest 1, pretest 2 and the posttest, while the treatment group is the only group that receives the research treatment.

The double- pretest design is according to Trochim and Donnelly (2007) a strong quasi-experimental design with respect to internal validity. They argue that nonequivalent groups are vulnerable to selection-maturation threats. The double-pretest

design allows the researcher to understand possible biases in the main treatment analysis by noticing changes from pretest 1 to pretest 2. If the control group and the experimental group were maturing at different rates, that difference would have been present between the pretests. In other words, if treatment effects emerge in the analysis of pretest 1 to pretest 2, similar biases may exist in the analysis from pretest 2 to posttest. Consequently, the study should be cautious on attributing differences on the posttest due to the intervention. Trochim and Donnelly (2007) concluded that the double-pretest design explicitly controls for selection-maturation threats.

During the qualitative phase, two focus group interviews were the primary form of data collection. According to Barbour (2007) the use of focus groups has become a major approach in qualitative research that in many cases are integrated with quantitative methods. She also suggests that holding two focus groups with groups that present similar characteristics may place the study on firmer ground. Barbour (2007) considers the focus group a strong alternative to using single interviews as the data basis for qualitative analysis. The interactional context in which participants report their experiences and the way reports are produced has been described as an advantage of this approach.

Considering that the explanatory sequential design involved first collecting, analyzing, and using the data results to inform the follow-up qualitative data collection, the focus group interview protocol was finalized once the quantitative analysis was completed. According to Creswell and Plano Clark (2011), the qualitative phase is designed to better understand the quantitative results by exploring the factors found to be

significant in the quantitative phase. Therefore, the quantitative results that needed to be further explained were taken into consideration.

Instrumentation

Hsu and Sandford (2010) state that instrumentation not only refers to the tools or means that investigators use to measure variables or items of interest in the data-collection process such as surveys, tests, questionnaires, etc., but to the course of action that includes developing, testing, and using the device. They go even further when adding the conditions in which the instrument will be administered. This last factor involves the procedure of establishing instrument validity and reliability to minimize measurement errors.

Quantitative Instruments

Two instruments in the form of tests were used during the quantitative phase (See Appendix C and D). The first instrument was the pretest 1 given to participants to measure the outcome variable before the experimental manipulation was implemented. The second instrument served as the pretest 2 and the posttest.

The instrument for the first pretest contained two sections. The first section targeted previous knowledge of the verb *ser* (see Appendix C), while the second section only targeted the uses of the verb *estar* (see Appendix D). Both sections assessed the use of both verbs in all of their forms by asking students to complete mini conversations with the correct forms of the verb *ser* in Spanish and fill in the blanks with the correct forms of the verb *estar* to complete seven sets of mini-dialogues.

The instrument for the second pretest consisted of a more complex assessment that combines the use of both forms *ser* and *estar* (see Appendix E). According to Rodriguez (2009) the use of both copular verbs by learners represents a challenge due to the contrastive analysis and a greater cognitive demand to discriminate between the forms *ser* and *estar*.

The posttest used the same set of questions used in the second pretest. It was administered to determine if the video podcasts created by middle school students in foreign language grammar instruction had a significant effect on students' performance.

The philosophical assumption of the explanatory sequential approach, which moves from a postpositivist orientation in the quantitative phase to a constructivist orientation in the qualitative phase, is critical as it guides the development of instruments, measures variables, and assesses statistical results. For the quantitative phase, a double-pretest and posttest were administered (Light, Calkins, Luna, & Drane, 2009). Figure 5 shows the procedure for conducting the quasi-experimental design.

Double-pretest - and Posttest Design **Time** →

Selected Control Group	Double-pretest	No Treatment	Posttest
Selected Experimental Group	Double-pretest	Experimental Treatment	Posttest

Figure 5. Procedure for conducting a quasi-experimental design as suggested by J.W. Creswell, 2008, *Educational Research*, p. 314. Copyright 2008 by Pearson Education, Inc.

The instruments for the double-pretest and posttest consisted of district-approved grammar assessments used by the foreign language department in Gwinnett County

Public Schools to assess student's general knowledge of the English verb to be in the forms of *ser* and *estar* in Spanish. The double-pretest and posttest are traditional assessments that ask students the distinction in meaning of each verb, as well as the use of both forms in real context. Knowing that a faulty instrument cannot accurately measure changes in knowledge, the adopted instruments were developed in 2004 by an experienced team of foreign language teachers at the Gwinnett County Public Schools with the main purpose of creating valid and reliable assessments to assess the progress toward the Academic Knowledge and Skills (AKS) approved the School Board. Since then, these assessments have been yearly reviewed to accurately assess knowledge gains.

The reliability of the instruments was examined by using the alternative forms reliability and the internal consistency reliability. As suggested by Creswell (2008), the alternative forms reliability involves using two instruments that measure the same variables and the scores correlate for the same group of individuals to the two instruments. The study compared the scores of pretest 1 with the scores of pretest 2 that measured similar items with same level of difficulty, and same types of scales to determine if the two instruments were equivalent in the first place. As described in Chapter Four, the study found that scores from the first instrument were equivalent to scores on the second instrument. Thus, the confidence in the accuracy or reliability of the scores from the first instrument was established.

The internal consistency reliability performed on the quantitative instruments revealed that those instruments were reliable. This type of reliability was examined by using a modified Kuder-Richardson split half test with the Spearman-Brown formula (Thorndike, 1997), which estimates full-length test reliability by using all questions. The

scores on the odd and even items of each instrument were introduced and analyzed with the IBM® SPSS Statistics version 23.0. As shown on Table 7, the Spearman-Brown coefficient values of .915, .815, and .918 established the internal reliability of all three instruments used in the quantitative phase.

Table 7
Spearman-Brown Coefficients of Quantitative Instruments

			Pretest 1	**Pretest 2**	**Posttest**
Cronbach's Alpha	Part 1	Value	.806	.585	.665
		N of Items	8[a]	10[a]	8[a]
	Part 2	Value	.720	.737	.477
		N of Items	8[b]	9[b]	8[b]
	Total N of Items		16	19	16
Correlation Between Forms			.843	.688	.849
Spearman-Brown Coefficient	Equal Length		.915	.815	.918
	Unequal Length		.915	.815	.918
Guttman Split-Half Coefficient			.913	.813	.901

The validity, which examines if the reported scores are valid, was also considered by using the content validity, which is one of the three types of validity proposed by Creswell (2008). According to the American Educational Research Association (AERA) (1999), assessments cannot be considered intrinsically valid or invalid because its validity is not in itself, but instead in the particular purpose intended for it. In concordance with the previous assert and concerning content validity, Sireci and Faulkner-Bond (2014) define content validity as the degree to which the content of a test is congruent with testing purposes. This type of validity, which is non-statistical, comprises a systematic analysis of the assessment content to decide if it includes a sample that represents the behavior domain to be measured (Anastasi & Urbina, 1977). The three instruments selected for the quantitative study and their specifications have been reviewed by a panel

of experts at the foreign language department in Gwinnett County that have determined their validity since 2004. The study also considered an additional examination that followed a framework for evaluating test content suggested by Sireci and Faulkner-Bond (2004). The framework included the following four elements of content validity: domain definition, domain representation, domain relevance, and appropriateness of test construction procedures. To accomplish this evaluation, two subject matter experts were invited to review the four domains: the administrator in charge of testing at the school site, and a foreign language teacher within the same school district who was familiar with the content and curriculum. The domain definition was accomplished by reviewing the content area and cognitive abilities the test was designed to measure. The domain representation was completed by reviewing and rating all the tests items. The domain relevance was accomplished by rating the degree to which test items were relevant to the targeted domain. The fourth aspect of content validity, which is the appropriateness of the test development process, was accomplished by the subject matter experts by making sure that tests items did not measure irrelevant material. Accuracy and conformity to standard principles of quality item writing were two of the quality control procedures taken into consideration for this last domain. By gathering validity evidence based on tests content, the subject matter experts concluded that all three instruments used during the quantitative phase efficaciously met the four elements of content validity suggested by Sireci and Faulkner-Bond (2013).

Qualitative Instrument

As previously referred, during the qualitative phase, focus group interviews were the primary form of data collection. The focus group interview protocol consisted of six predetermined, open-ended questions with the purpose of collecting shared understanding, experiences, and views from different participants. The first question encouraged participants to share their experiences of creating a video podcast to explain the verb *to be* in Spanish while making them comfortable with the discussion. The following four questions, also called the core questions, got to the heart of the discussion by allowing participants to talk and fully explain their experiences of creating a video podcast. The last question checked to see if anything was missed during the discussion. Each question had three to five probes to allow participants to expand in their responses as necessary.

Creswell and Plano Clark (2011) suggest that reliability plays a minor role in comparison to the validity in qualitative research. While validity refers to the ability to measure what is supposed to be measured, reliability refers to the consistency of a measure (Abramson, 2012). According to Poetschke (2002) and Patton (2002), reliability in focus groups can only be pursued in the analysis of the data. Golafshani (2003) suggests that trustworthiness, which is establishing confidence in the findings, is a crucial element to ensure reliability. Guba (1981) posits that credibility, transferability, dependability, and confirmability are four criteria that qualitative researchers should follow to pursuit a trustworthy study. Shenton (2004) expanded the suggested quality criterion by proposing a range of strategies to ensure trustworthiness in qualitative

research projects. Table 8 shows the strategies selected to address Guba's (1981) four criteria for trustworthiness.

The validity was grounded on the two-dimensional framework for qualitative inquiry proposed by Creswell and Miller (2000). The framework identifies nine validity procedures from two perspectives: the lens used by the researcher to validate the study and the researchers' paradigm assumptions. The lens refers not only to the inquirer's viewpoint, but to the one used by study participants and reviewers that are not affiliated with the project.

Table 8
Strategies that were used to Establish Confidence in the Findings

Quality Criterion	Strategies that Address Guba's Four Criteria for Trustworthiness
Credibility	• Adoption of appropriate well recognized research methods • Development of early familiarity with culture of participating organizations • Triangulation via use of different type of participants. • Tactics to help ensure honesty in participants • Debriefing sessions between researcher and superiors • Peer scrutiny of project • Description of background, qualifications and experience of the researcher • Member checks of data collected
Transferability	• Provision of background data to establish context of study and detailed description of phenomenon in question to allow comparisons to be made
Dependability	• In-depth methodological description to allow study to be repeated
Confirmability	• Triangulation to reduce effect of investigator bias • Admission of researcher's beliefs and assumptions • Recognition of shortcomings in study's methods and their potential effects

Note: This table shows the strategies that were used to establish confidence in the findings as suggested by A. K. Shenton, 2004, Strategies for ensuring trustworthiness in qualitative research projects, *Education for Information, 22*, p. 73. Copyright 2004 by IOS Press.

The paradigm assumptions, labeled by Guba and Lincoln (1994), are aligned with the use of systematic forms of inquiry that employ rigorous standards and clearly identified procedures. Table 9 shows the lens and paradigm assumptions with the nine types of validity procedures selected.

Table 9
Validity Procedures within Qualitative Lens and Paradigm Assumptions

Paradigm assumption/Lens	Postpositivist or Systematic Paradigm	Constructivist Paradigm	Critical Paradigm
Lens of the Researcher	Triangulation	Disconfirming evidence	Researcher reflexivity
Lens of Study Participants	Member checking	Prolonged engagement in the field	Collaboration
Lens of People External to the Study (Reviewers, Readers)	The audit trail	Thick, rich description	Peer debriefing

Note: This table shows the lens and paradigm assumptions to create a two-dimensional framework for locating nine different types of validity procedures as suggested by J. W. Creswell and D.L. Miller, 2000, Determining Validity in Qualitative Inquiry, *Theory into Practice*, 39(3), p. 126. Copyright 2000 by the College of Education, The Ohio State University.

Approach / Procedures / Research Questions

The study was conducted after the final approval from the Institutional Review Board (IRB) at Nova Southeastern University, approval from Gwinnett County Public Schools, and permission from the dissertation committee to begin the treatment. The consent process consisted of the following two steps:

1. An email was sent to 66 parents or guardians of the eighth-grade students taking Spanish level 1 at Osborne Middle School, notifying them of the investigator's interest in doing research in video podcasting (see Appendix G).

2. The consent form was sent to the same 66 parents with a letter of research interest and a pre-stamped envelope to return the signed form (see Appendix H).

Upon receipt of all 66 consent forms from parents, a teacher, who acted as a recruiter, was invited to conduct the subject recruitment. The recruiter was an engineering teacher at the same school who explained the study to the students. The explanation followed the information included in the assent form for participation (see Appendix I). After the explanation, the recruiter delivered the assent forms to the potential participants, and they were given adequate time to decide if they wanted to participate in the research.

A total of 66 students divided into two groups of 33 first took two district-approved grammar assessments for the selected topic as a double-pretest to measure students' general knowledge of the English verb to be in the forms of *ser* and *estar* in Spanish (see Appendix C, D and E). The next step was to apply the treatment conditions, which lasted four weeks. During the experimental treatment, the instructor intervened to alter the conditions of the experimental group. At the beginning, both groups received the same traditional form of grammar instruction by the Spanish teacher, who was the same individual that conducted the investigation. Then, the control group continued using the traditional practices to master the selected vocabulary and grammatical concepts while the experimental group was instructed in the process of developing a student-created video podcast about the grammar topic selected for this study (see Appendix J). Participants in the experimental group were also instructed on the use of six multimedia design principles of CTML to minimize extraneous load and maximize

potential for deep cognitive processing. During this step, the process to minimize threats to internal validity was closely monitored as suggested by Creswell (2008).

The final step was to assess whether the treatment condition influenced an outcome. A posttest measured the difference between the control and the experimental groups. The resulting data were analyzed using paired samples *t*-test.

The quantitative results guided the development of the qualitative strand. As suggested by Creswell and Plano Clark (2011), the identification of specific quantitative results would call for additional explanations that can be revealed by using an interview protocol to collect the data. The qualitative approach consisted of two focus group interviews to collect shared understanding, experiences, and views from different participants that were selected from the experimental group using the purposeful sampling approach. Considering that the focus group interviews involved the collection of data from participants in the forms of voice and video, a new consent form was send to the parents of potential participants (see Appendix K). After securing the consent from parents, the recruiter explained the focus group interview process to students. After the explanation, the assent forms were delivered to the potential participants (see Appendix L). The maximal variation sampling was the purposeful strategy followed to select two groups of nine participants. According to Creswell (2008), this strategy is helpful when participants display different characteristics and may offer different dimensions to the study. Learning style, academic performance, and posttest results were some of the characteristics considered for selecting the participants in this phase.

During the focus group interviews, open-ended questions were used to allow participants to voice their experiences without any constraint. The answers were

recorded and transcribed for analysis. Following Creswell's (2008) advice, participants were encouraged to talk, interact, and cooperate with each other. It is critical to foster the best interview environment to yield the best information. During the last step of the explanatory sequential design, the qualitative results were used to explain and add insights to the quantitative results.

In order to accomplish the goal, the following procedures were implemented to answer each question:

What has been reported in the literature about multimedia development by students and its effect on learning?

A review of current literature provided the foundational field on multimedia development and more precisely about the impact of video podcasting design and development and its effect on learning. Video podcasting has been used in education as a multimedia learning technology that attempts to follow the principles of the Cognitive Theory of Multimedia Learning (CTML) as proposed by Mayer (2005). Video podcasting is a multimedia instructional design that aims to use cognitive research to combine verbal and non-verbal material in ways to maximize learning effectiveness (Sorden, 2013). Therefore, CTML, foreign language grammar instruction and video podcasting constitute the foundational fields upon which the work was built.

What learner-centered learning theory will be used as a theoretical framework to guide the creation of the video podcasts by foreign language middle school students?

The review of literature helped to identify a suitable learner-centered learning theory that served as a theoretical framework to guide middle school students in the creation of the video podcasts. Such theory considered the student's cognitive capacity and working memory in order to help students to manage essential processing, and to reduce extraneous processing to foster generative processing.

What differences in terms of student achievement exist between middle school students who create a video podcast to promote foreign language grammar acquisition and students who follow a traditional instructional approach?

The quantitative phase of the explanatory sequential design (Creswell & Plano Clark, 2011) was the methodological approach to be used to find the significance results in the use of student-created video podcasts to promote foreign language grammar acquisition in middle schools. A double-pretest and posttest were administered.

How do the interviews with students help to understand their experiences when using a student-created video podcast as an instructional strategy to promote foreign language grammar acquisition?

The qualitative phase of the explanatory sequential design (Creswell & Plano Clark, 2011) was the methodological approach used to understand how students experience this learning strategy. An interview protocol that used open-ended questions was the approach to follow in a focus group interview to collect the data.

How can the experiences that emerge from the quantitative and qualitative data be useful to promote student achievement in other subject areas?

The qualitative phase of the explanatory sequential design (Creswell & Plano Clark, 2011) was also used to follow up with participants' experiences to explore possible applications of using video podcasts in other subject areas to promote student achievement. A focus group interview was the strategy in place to collect the data.

Data Collection

Data were not collected until final approval from the Institutional Review Board (IRB) at Nova Southeastern University. Upon receipt of the IRB approval and consistent with the suggested approach of using a mixed methods research, the data were collected in two phases. According to Creswell and Plano Clark (2011), the data collection procedures in the explanatory sequential design involve first collecting quantitative data, analyzing the data, and using the results to inform the follow-up qualitative data collection. Therefore, sampling was taken during the quantitative phase and the qualitative phase. Under this design, both data collections are related to each other and not independent. The following questions were taken into consideration before collecting data:

1. How will participants be selected for both phases?
2. What sample size will be used for both strands?
3. What type of data will be collected from one phase to the other?
4. What will be the time commitment associated with each step in the research project?

Quantitative Data Collection

Quasi-experimental research that uses a double-pretest and posttest design was used to collect quantitative data. The study compared two eighth-grade middle school classes of 33 students who were taking Spanish I as a foreign language class. The study used a convenience sampling approach, which is one of the nonprobability strategies due to the pre-existence of groups and availability. According to Creswell (2008), this sampling approach is useful when individuals represent characteristics that the investigator is seeking to study. The study did not assign participants to either group. Since rearranging classrooms for the purpose of this study was not an option due to the disruption it would cause in a public school setting, the quasi-experimental design seemed to offer a better design without causing a major disruption. A nonrandom assignment to select the control group and the experimental group was the approach used. According to Trochim (2006), each group can be arbitrarily selected as control and experimental groups. Students in the control group did not participate in the treatment, while students in the experimental group took part in the experimental treatment, which consisted of creating a video podcast about the grammar in question by using six multimedia design principles of the cognitive theory of multimedia learning selected for this research.

To equate the characteristics of both groups, the data were collected by using a double-pretest design. After the treatment, a posttest was administered to participants to measure knowledge gained.

Qualitative Data Collection

During the qualitative phase, the focus group interview approach was used as the primary source of data collection. Whitney (2005) suggests that middle school students enjoy gathering in groups to discuss their thoughts on topics important to them. Open-ended questions were used to gather information about the experiences of creating video podcasts in the foreign language class with two focus group interviews.

Generating lively discussion and rich qualitative data that helps the researcher to understand the "why?" is one of the most critical issues when conducting a focus group interview. Jayanthi and Nelson (2002) indicate that the real strength of focus groups is to gain insights into the reasons that respond to the why. They argue that using open-ended questions help the researcher to explore participants' comments, as they are more willing to share their experiences among peers that share the same concerns and interests, and the atmosphere of the focus group encourages participants to interact with each other.

Creswell and Plano Clark (2011) suggest that participants in the qualitative phase should be individuals who participated in the initial quantitative data collection. Considering that the explanatory sequential design aims to explain quantitative results, the follow-up phase should provide more details about the initial findings by interviewing individuals who contributed to the quantitative data set. Creswell and Plano Clark (2011) recommend using a much smaller sample during the qualitative data collection. They argue that having unequal sizes should not be an issue of concern in sequential designs since the purpose of this approach is not to merge or compare data. With respect to the ideal size of a group, Barbour (2007) suggests that the number of participants depends on the skill of the moderator, and on the level and complexity of the discussion.

Considering these recommendations, nine participants per focus group were recruited. Participants were selected by using the maximal variation sampling, which is a type of purposeful sampling approach. According to Creswell (2008), this type of purposeful sampling allows the selection of participants that differ on characteristics or traits. Learning style, academic performance, and posttest results were some of the characteristics considered to bring different perspectives from participants.

The focus group interviews were conducted by the researcher and a local school technology coordinator. The local school technology coordinator served as an assistant moderator to deal with housekeeping issues and help with note taking. A comfortable and easily accessible conference room that promotes a nice and friendly environment was selected. Participants were provided with drinks and snacks. Suggested by Kruger (1998), the moderator and the assistant were mindful of the following matters during the interview:

1. Setting a positive tone.
2. Making sure that everyone is heard by drawing out quieter members.
3. Probing for deeper opinions.
4. Monitoring the questions and the time closely to be on track.
5. Avoiding participation in the dialogue or correcting participants.
6. Remaining neutral by refraining from nodding, raising eyebrows, agreeing or disagreeing, praising or denigrating any comment made by the participants.
7. Thanking participants.

Besides using note taking during the interviews by the moderators, the information provided by participants was collected by using recording devices such as a tape and

video recorders. Participants were assured that despite the use such devices, their participation would remain confidential and would only serve the purpose of facilitating report writing.

Data Analysis

The purpose of the data analysis in mixed methods research is to represent, interpret, and validate data and results (Creswell & Plano Clark, 2011). The data analysis for the quantitative and qualitative data followed a similar set of steps that included preparing the data for analysis, exploring the data, analyzing the data, representing the analysis, interpreting the analysis, and validating the data and interpretations. Table 10 shows the adapted data analysis procedures suggested by Creswell and Plano Clark (2011) that were used to guide the data analysis.

As quantitative and qualitative researchers pursue different approaches to gathering and analyzing data, reporting their findings required the use of different approaches as well. Although the use of tables and figures has been conventionally used to represent quantitative results, the summaries were also presented in statements that summarize the statistical results. Creswell (2008) suggests that this process requires explaining significant statistical findings by using language acceptable to quantitative researches. In concordance with this recommendation, the findings were summarized by using succinct sentences that still provided sufficient information in order to present a complete picture of the results. The statements served to augment rather than duplicate information provided in visual forms.

Table 10
Quantitative and Qualitative Data Analysis Procedures

Rigorous Quantitative Data Analysis Procedures	**General Procedures in Data Analysis**	**Persuasive Qualitative Data Analysis Procedure**
• Code data by assigning numeric values. • Prepare the data for a *t*-test analysis. • Recode or compute new variables for computer analysis. • Establish codebook.	Preparing the data for analysis	• Organize documents and visual data. • Transcribe text. • Prepare the data for analysis with a computer program.
• Visually inspect data. • Conduct descriptive analyses. • Check for trends and distributions.	Exploring the data	• Read through the data. • Write memos. • Develop qualitative codebook.
• Choose an appropriate statistical test (*t*-test). • Analyze the data to answer the quantitative research questions. • Report inferential tests, effect sizes, and confidence intervals. • Use Statistical Program for the Social Sciences (SPSS) for quantitative data analysis.	Analyzing the data	• Code the data. • Assign label to codes. • Group codes into themes or categories. • Interrelate themes or categories or abstract to smaller set of themes. • Use NVivo software for qualitative data analysis.
• Represent results in statement of results. • Provide results in tables and figures.	Representing the data analysis	• Represent findings in discussions of themes or categories. • Present visual models, figures, and tables.
• Explain how the results address the quantitative research questions. • Compare the results with past literature, theories, or prior explanations.	Interpreting the results	• Assess how the qualitative research questions were answered. • Interpret how the qualitative results explain the quantitative results. • State new questions based on the findings.
• Use external standards. • Establish validity and reliability of current data. • Assess the internal and external validity of results.	Validating the data and results	• Use validation strategies, such as triangulation and external reviewers. • Check for the accuracy of the account. • Employ limited procedures for check reliability.

Note. Adapted from "Recommended Quantitative and Qualitative Data Analysis Procedures for Designing Mixed Methods Studies," by J.W. Creswell and V.L. Plano Clark, 2011, *Designing and Conducting Mixed Methods Research*, p. 205-206. Copyright 2011 by SAGE Publications, Inc.

Qualitative findings were reported using a narrative discussion. Creswell (2008) defines narrative discussion as a written passage that summarizes, in detail, findings from the qualitative data analysis. The narrative served as the way to build a discussion that revealed the themes or categories that emerged from the data. The following writing strategies suggested by Creswell (2008) were taken into consideration to report the findings:

1. The report included dialogues that provide support for themes.
2. The report used the participant's language as they try to convey their own experiences in creating a video podcast.
3. The report quoted from interview data and from observations of individuals.
4. The report identified multiple perspectives from participants.
5. The report wrote in vivid details.
6. The report specified contradictions or differences in individual experiences.

Resources

The study required the use of human and material resources. This section describes the people, places, technology, and permissions required to carry out the study.

People

The people involved in the study were the researcher, who also acted as the instructor, and focus group facilitator during the study, a recruiter for the quantitative and

the qualitative phase, a moderator assistant for the focus groups, the participants, a local group of experts and dissertation committee. The local group of experts was comprised of a local school technology coordinator, a school administrator, and the school's district executive director of the office of research and evaluation. Considering that the researcher also acted as the instructor and the focus group facilitator, their roles are described in a section called the 'self as the researcher' in this chapter.

The population under consideration was comprised of 66 middle school students taking Spanish I as a foreign language at Osborne Middle School in Gwinnett County, Georgia during the 2015-2016 school year. The participants were equally divided by the school in two groups of 33 each.

Places

As the main goal was to study the effectiveness of student-created video podcasts to promote foreign language acquisition at the middle level, the study was conducted at Osborne Middle School in Gwinnett County, Georgia. The school is located 43 miles northeast of the city of Atlanta. The school is well-known for its many recognitions and high achievement performance in the State of Georgia. Osborne Middle School is one of the 134 schools in the Gwinnett County system. Its population for the 2015-2016 was estimated to be 1,650 students.

Technology

Making video podcasts required equipment that was provided by Osborne Middle School. Even though Criswell (2008) indicates that podcasting does not require

expensive equipment, the current study used a state-of-the-art video podcasting lab, which consisted of a reversible multi-touch 12.5-inch HD display that swivels 180º to go from laptop to tablet to allow students to write directly on the screen by using a digitizer pen. It also had an integrated 720p HD webcam with dual digital array microphones. To capture the video, participants used Camtasia Studio® version 8.6.0. This software allowed students to record their video presentations and edit content. The lab also had a Behringer® XENYX QX1202USB audio mixer that could be connected directly to the computer for a high-performance recording. In addition to the computer internal microphones, the lab had four external microphones; two PC 230 Sennheiser® headsets that provide a high quality recording by reducing ambient noise and delivering a clear and detailed sound reproduction, and two Shure SM58 handheld unidirectional vocal microphones that minimize unwanted background noise. Figure 6 shows the setup of the video podcasting lab that was used during the study.

Figure 6. Set up of video podcasting lab at Osborne Middle School in Gwinnett County, Georgia. Video Podcasting Lab. Personal photograph by Sergio Parra. June 16, 2014. JPEG file.

To analyze the quantitative findings, the IBM® SPSS Statistics version 23.0 was used during the study. The software was installed on a computer that met all the requirements for running the last updated SPSS version.

Permissions

The study involved human subjects that required the intervention of the Institutional Review Board (IRB) at Nova Southeastern University and the Gwinnett County Public Schools' department of research and evaluation to make sure that all procedures adhere to the ethical principles and acceptable conduct of research involving human subjects. The research received the approvals from the local public school's department of research and evaluation (see Appendix M) and from Nova Southeastern University's IRB office (see Appendix N). Additionally, consent and assent forms were approved by Nova Southeastern University's IRB office (see Appendix G, H, I, K, and L).

Self of the Researcher

Tied into issues of trustworthiness and transferability is the self of the researcher. Unluer (2012) argues that it is crucial to clarify the researcher's role, especially when the inquirer is an insider-researcher. Breen (2007) defines an insider-researcher as an inquirer who chooses to study a group to which the researcher belongs. The greater familiarity with the participants and the dual role of the researcher may bring some advantages to the study, but as Unluer (2012) describes, being an insider-researcher can bring some disadvantages that can lead to a loss of objectivity.

Bonner and Tolhurst (2002) identify three significant advantages of being an insider-researcher: (a) having a greater understanding of the culture being studied; (b) not altering the flow of social interaction unnaturally; and (c) having an established intimacy which promotes both the telling and the judging of truth. A great deal of knowledge that includes the phenomenon under study as well as the personality of participants may have enriched the research. As an instructor, every effort was made during the study to promote communication effectively regardless of the strategy or technology used. It was of a greater interest to reach the instructional goals during instruction than focusing on a particular strategy. Although academic routines may have changed from class to class, the instructor strived to deliver the same quality of instruction among the groups. The existing relationship between the instructor and the participants helped the instructor/researcher to recognize when a participant was eager to perform better because of their inner motivation for excellence or prevented a better performance due to lack of interest. As an insider, experiencing these advantages during the study was very helpful.

Despite the noticeable advantages of being an insider-researcher, the possibility of research bias, prejudices, conflict of interests, and wrong assumptions about the research process might be problems associated with being an insider with a dual role. Unluer (2012) suggests that insider-researchers should constitute an explicit awareness on how to control these potential problems by taking a preventive approach. Gender, race and ethnicity, culture, level of education, etc., are factors that may predispose an individual to persist in a point of view or limit such points of view toward or against an individual or any group. Investigators are not exempted from this tendency, also known as bias. Smith and Noble (2014) indicate that bias exist in all research. They argue that bias can occur

at each stage of the research process. Although the researcher considered the possibility of finding a significant difference in performance among the control group and the experimental group by implementing student-created video podcast in foreign language grammar instruction, the researcher was aware of any form of bias during the whole research project process, including the researcher's own assumptions and perspectives. To control any form of bias, the inquirer adopted the use of bracketing, a method used in qualitative research to lessen the potential detrimental effects of unacknowledged preconceptions that may tint the research process (Tufford & Newman, 2010). Bracketing was a procedure of self-discovery that encouraged self-awareness of buried emotions, emotional reactions and even past experiences or cognitive bias during data collection and analysis. To minimize the impact of any bias throughout the process, a team of local experts comprised of the local school technology coordinator, a school administrator, and the school's district executive director of the office of research and evaluation were enlisted. The researcher also used the strategy of writing memos during data collection and analysis as a means of examining and reflecting upon the researcher's engagement. This strategy enhanced researcher's ability to sustain a reflexive stance. During the interviews, the local school technology coordinator was also invited with the purpose of uncovering and bringing into awareness any potential preconceptions and biases from the inquirer.

Summary

The chapter described the proposed methodology to collect data from two different sources. The study suggested using the explanatory sequential design, which is

a mixed methods research that addresses the five quantitative and qualitative research questions. The explanatory sequential design started with the collection and analysis of quantitative data. This quantitative phase was followed by a qualitative phase with the purpose of explaining how students experience this multimedia learning strategy.

For the quantitative phase, a double-pretest and posttest were administered, while the qualitative phase followed with two focus group interviews that used six open-ended questions to explore their experiences during the quantitative phase. Upon completion of data collection, the data were analyzed and results and findings are reported in chapters 4 and 5.

Chapter 4

Results

The problem addressed was the need for experimental research concerning the effectiveness of using student-generated video podcasts in foreign language grammar instruction at the middle school level. The use of video podcasting as a multimedia instructional strategy and a multimedia learning tool has been specifically associated with helping students in gaining deeper learning and improving student performance, as they can combine visual and auditory representations into a single multimedia presentation (Walker, Cotner, & Beerman, 2011). However, very few studies of video podcasting in middle schools have gone beyond the passive mode of watching teacher-produced content to one that promotes active learning by students creating the video podcasts (Lee, McLoughlin, & Chan, 2008). The involvement of middle school students in planning and creating their own video podcasts and how this engagement may promote active learning has not been adequately considered. While Johnson (2008) reported that student-created video podcasting is uncommon with little attention in the literature, Kay (2012) suggested that additional research on the use of video podcasting as an instructional strategy is needed.

Thus, the goal was to evaluate the effects of video podcasts created by students as a multimedia pedagogical strategy to promote foreign language grammar acquisition in middle schools. In order to achieve the transfer of passive voice grammar into procedural knowledge and promote communicative goals in foreign language instruction, principles

of CTML were used to guide the design of the video podcasts by middle school students to minimize extraneous load and maximize potential for deep cognitive processing.

This chapter presents the outcomes of the quantitative and qualitative data collected from two groups at Osborne Middle School taking Spanish level 1. A mixed data collection approach was used in this explanatory sequential design research. This chapter includes the demographics of the student sample population that participated in the study, a brief description of the implementation, and the findings that resulted from the descriptive and inferential analyses collected from the quantitative data, and findings in discussions of themes or categories that resulted from the focus group interviews during the qualitative phase.

Demographics

The population sample for this study consisted of 66 eighth-grade middle school students equally divided in two predetermined sections of Spanish level 1 at Osborne Middle School in Gwinnett County, Georgia. The participants were selected by following a convenience sampling method, which is one of the two nonprobability sampling approaches suggested by Creswell (2008). To select the control group and the experimental group, a nonrandom assignment was the approach used by arbitrarily selecting the groups as suggested by Trochim (2006). There were 33 students enrolled in the control group (Group 8B), and same number of participants in the experimental group (Group 8A). All 66 students voluntarily decided to participate in the study.

Considering that selected classes were predetermined by the school, the characteristics of the participants were acknowledged to determine if the groups were

comparable. Some demographic information was gathered from the school records about participants, such as age, gender, and academic setting which included general or gifted education. No special education students were among the groups. Surprisingly, the ages of the participants, the distribution of boys and girls, and the academic setting of participants in each group were equally represented. These findings evidenced how participants in both groups possessed similar, if not, identical characteristics. Table 11 presents a summary of the descriptive information for each group.

Table 11
Demographic Information

	Age	**Gender**	**Academic Setting**
Control Group	19 participants of age 13 14 participants of age 14	24 Girls 9 Boys	23 Gifted 10 Regular
Experimental Group	19 participants of age 13 14 participants of age 14	24 Girls 9 Boys	23 Gifted 10 Regular

Implementation

As stated in Chapter Three, one data source was not sufficient to address the research questions. The current study was conducted using the explanatory sequential design, which is a two-phase strategy that included quantitative and qualitative methods research. As quantitative and qualitative researchers pursue different approaches to gathering and analyzing data, reporting their findings required the use of different approaches as well. Although the use of tables and figures has been conventionally used to represent quantitative results, the summaries were presented in statements that summarized the statistical results. Creswell (2008) suggests that this process requires

explaining significant statistical findings by using language acceptable to quantitative researchers. In concordance with this recommendation, findings were summarized by using succinct sentences that provided sufficient information in order to present a complete picture of the results. The statements served to augment rather than duplicate information provided in visual forms.

Once IRB permission was granted to carry out the investigation and the consent and assent forms were secured, the double-pretest was administered. The double-pretest, which served to determine the participant's baseline knowledge of the foreign language grammar in question, consisted of two district-approved grammar assessments of the English verb *to be* in the forms of *ser* and *estar* in Spanish (see Appendix C, D, and E). Following the pretests, the conditions in the control and experimental groups were altered. Although both groups received the basic traditional form of grammar instruction at the beginning, the control group mastered the grammar by following the traditional approaches for grammar instruction, while participants in the experimental group developed a student-created video podcast about the grammar topic selected for this study. The final step in the quantitative phase was to administer a posttest to assess whether the treatment condition influenced an outcome and to assess the differences between the two groups. The resulting data were analyzed by using a *t*-test on the version 23 of the IBM® SPSS Statistics software.

The qualitative phase consisted of two focus group interviews to collect shared understanding, experiences, and views from different participants. Five open-ended questions and 18 probes were used to allow participants to voice their experiences.

During the interview, the responses from participants to the following questions

were recorded: (a) how did they describe their experience of creating a video podcast to explain the verb *to be* in Spanish. (b) what approach they believe can better help them to understand and learn the grammar topic in question? (c) how creating video podcasts with other students can help or hinder them from mastering a new grammar concept? (d) what was their opinion about the following statement: "When students teach other students, they reinforce their own understanding of material and are forced to face elements of a concept that might not be clearly understood", and (e) how creating video podcasts can benefit their learning experience and be useful to promote student achievement in other subject areas? The answers were transcribed, categorized, and analyzed by using the NVivo software for qualitative data. Students' responses were triangulated with the posttest results from the quantitative analysis to explain the slight difference in students' achievement when using a student-created video podcast as an instructional strategy to promote foreign language grammar acquisition.

Qualitative findings were reported using a narrative discussion. Creswell (2008) defines narrative discussion as a written passage that summarizes, in detail, findings from the qualitative data analysis. The narrative served as the way to build a discussion that revealed the themes or categories that emerged from the data. The following writing strategies suggested by Creswell (2008) were taken into consideration to report the findings:

1. The report included dialogues that provide support for themes.
2. The report used the participant's language as they tried to convey their own experiences in creating a video podcast.

3. The report quoted from interview data and from the observations of individuals.
4. The report identified multiple perspectives from participants.
5. The report was in vivid detail.
6. The report specified contradictions or differences in individual experiences.

Evaluation

Considering that this investigation followed a mixed methods research that used quantitative and qualitative strands, the outcomes are presented separately to reflect the findings on each phase.

Quantitative Findings

The results of the double-pretest were first used to establish if the two groups were comparable. The double-pretest design was selected for providing a strong quasi-experimental design with respect to internal validity. Considering that nonequivalent groups were vulnerable to selection-maturation threats, trends and selection bias prior to treatment administration were examined to see if groups were maturing at different rates between pretest 1 to pretest 2. The mean scores of both groups on pretest 1 and pretest 2 were very similar (See Table 12).

Table 12
Descriptive Statistics Associated with Mean Scores on Pretest 1 and Pretest 2

	Control or Experimental Group	N	Mean	Std. Deviation	Std. Error Mean
Pretest 1	Control Group	33	44.30	18.084	3.148
	Experimental Group	33	44.79	19.654	3.421
Pretest 2	Control Group	33	35.88	21.157	3.683
	Experimental Group	33	35.82	16.652	2.899

An independent sample *t*-test was conducted for pretest 1 and pretest 2 to determine if a difference existed between the mean pretest scores of the control group and the experimental group. To determine if there were any statistically significant differences on the pretests among the groups, a significance level (*alpha*) value of 0.05 was selected. A *p* value of 0.05 or less indicates a significant difference between groups when compared. A *p* value between 0.05 and 1.0 indicates that there was no significant difference between the groups. As can be seen in Table 13, the Sig. (2-tailed) on pretest 1 showed a *p* value of .917, higher than *alpha* value of 0.05. This first result indicates that there was no statistically significant difference between the mean pretest scores of both groups on pretest 1. Concerning pretest 2, the Sig. (2-tailed) showed a *p* value of .990, higher than *alpha* value of 0.05. This result shows that there was no statistically significant difference between the mean pretest scores of both groups on pretest 2 as well (See Table 14). Although mean scores on pretest 2 show a lower performance, which was expected considering that this instrument consisted of a more complex assessment than pretest 1, the mean scores were very similar for both groups. These results indicate that despite of having nonequivalent groups, they were comparable and that both groups were maturing at similar rates from pretest 1 to pretest 2.

Table 13
Independent Sample t-test on Pretest 1

			Equal variances assumed	Equal variances not assumed
Levene's Test for Equality of Variances	F		.004	
	Sig.		.947	
t-test for Equality of Means	T		-.104	-.104
	Df		64	63.561
	Sig. (2-tailed)		.917	.917
	Mean Difference		-.485	-.485
	Std. Error Difference		4.649	4.649
	95% Confidence Interval of the Difference	Lower	-9.773	-9.774
		Upper	8.803	8.804

To confirm if the variances of the groups were significantly different or not before treatment, a test of homogeneity of variances on pretest 1 and pretest 2 were performed and satisfied via Levene's *F* test with one-way ANOVA. As shown on Table 15, the *p*-value of 0.947 for pretest 1, and the *p*-value of 0.665 indicate that the variances were very similar. These findings confirmed the homogeneity of both groups previously reported from the equality of variances in the independent sample *t*-test. These results confirmed that both groups were very similar, and that both groups were maturing at similar rates from pretest 1 to pretest 2.

Table 14
Independent Sample t-test on Pretest 2

			Equal variances assumed	Equal variances not assumed
Levene's Test for Equality of Variances	F		.189	
	Sig.		.665	
t-test for Equality of Means	t		.013	.013
	df		64	60.651
	Sig. (2-tailed)		.990	.990
	Mean Difference		.061	.061
	Std. Error Difference		4.687	4.687
	95% Confidence Interval of the Difference	Lower	-9.302	-9.312
		Upper	9.424	9.434

Table 15
Test of Homogeneity of Variances on Pretest 1 and Pretest 2

	Levene Statistic	df1	df2	Sig.
Pretest 1	.004	1	64	.947
Pretest 2	.189	1	64	.665

To establish if the use of student-created video podcasts by middle school students had a significant effect on foreign language grammar acquisition, the scores of the posttest were analyzed. Descriptive statistics in Table 16 shows that the mean for the experimental group was slightly higher than the control group on the posttest. With a mean difference of -4.697, the next question was to confirm if this difference was statistically significant. An independent *t* test was conducted to determine if a difference existed between the mean posttest scores of the control group and the experimental group. The analysis showed that was no statistically significant difference between the mean posttest scores of the control

group (n = 33, M = 69.48, SD = 20.303) and the experimental group (n = 33, M = 74.18, SD = 18.009) (See Table 17).

Table 16
Descriptive Statistics Associated with Mean Scores on Posttest

	Group	N	Mean	Std. Deviation	Std. Error Mean
Posttest	Control Group	33	69.48	20.303	3.534
	Experimental Group	33	74.18	18.009	3.135

Table 17
Independent Sample t-test on the Posttest

			Equal variances assumed	Equal variances not assumed
Levene's Test for Equality of Variances	F		.932	
	Sig.		.338	
t-test for Equality of Means	t		-.994	-.994
	df		64	63.102
	Sig. (2-tailed)		.324	.324
	Mean Difference		-4.697	-4.697
	Std. Error Difference		4.724	4.724
	95% Confidence Interval of the Difference	Lower	-14.135	4.741
		Upper	-14.137	4.744

As presented in Table 17, the Sig. (2-tailed) value of .324 reflects that there were no significant differences in foreign language grammar acquisition between the two groups, since it was significantly higher than alpha value of .05. Thus, the results indicated that the use of student-created video podcasts by middle school students had no significant effect on foreign language grammar acquisition.

Qualitative Findings

By using five questions and 18 probes on the two focus group interviews, the following research questions four and five were addressed.

4. How do the interviews with students help to understand their experiences when using a student-created video podcast as an instructional strategy to promote foreign language grammar acquisition?
5. How can the experiences that emerge from the qualitative data be useful to promote student achievement in other subject areas?

The following five themes, along with the five focus group interview questions, emerged from the responses from both focus groups interviews:

Theme 1: Creating a video podcast.

Theme 2: Video podcasts versus traditional methods.

Theme 3: Cooperative learning.

Theme 4: Learning by teaching.

Theme 5: Creating video podcasts in other subject areas.

Theme 1: Creating a Video Podcast.

Theme 1 emerged based upon the students' responses to the first question and three probes from the interview protocol (see Appendix F). Sixteen of the eighteen participants in both focus groups expressed their experiences in creating a video podcast as positive, and used adjectives such as interesting, fun and enjoyable to describe their involvement in general. Being a fundamental question that set the tone of both interviews, the research includes how every participant responded to interview question

1: “How would you describe your experience of creating a video podcast to explain the verb *to be* in Spanish?”

Student 1 (S1) stated, “Recording the video podcast was one of the most fun parts of the project.”

Student 2 (S2) said, “I really enjoyed the project because I got to explore different ways to view the verbs and also to work with people I have never met before.”

Student 3 (S3) stated, “I really enjoyed the project because I got to explore different ways to view the verbs and also to work with people I have never met before.”

Student 4 (S4) said, “I really enjoyed the project because I got to explore different ways to view the verbs and also to work with people I have never met before.”

Student 5 (S5) stated, “I found it very beneficial because it allowed me to learn more of myself on that topic and understand the concept.”

Student 6 (S6) said, “It was better than doing worksheets because I felt more involved in the learning process.”

Student 7 (S7) stated, “It was better than doing worksheets because I felt more involved in the learning process.”

Student 8 (S8) said, “I enjoyed using the video podcast lab, but absences in my group were a problem and we had to work quickly to make up for the absences.”

Student 9 (S9) said, “The podcast helped us to learn the material and understand it better.”

Student 10 (S10) stated, “I found it helpful to remember the forms and work with classmates.”

Student 11 (S11) said, “It was an interesting and enjoyable experience to work with my partners to create the video podcast.”

Student 12 (S12) stated, “It was interesting at some times. I felt excluded in my group, but overall I learned a lot.”

Student 13 (S13) said, “It was fun, but the speaking (recording) part was kind of hard.”

Student 14 stated, “It was fun and helped me learn the material.”

Student 15 (S15) said, “I liked making the podcast because it helped me understand about the topic. The podcast helped me work well while learning more (easy to understand).”

Student 16 (S16) stated, “I enjoyed creating the podcast because I believe it is easier for me to remember the podcast than doing a worksheet.”

Student 17 (S17) said, “It was a fun time and a good use of technology that many teachers barely do.”

Student 18 (S18) stated, “It was a fun time and a good use of technology that many teachers barely do.”

When participants were specifically asked about the easiest thing to accomplish during the process of creating a video podcast, 11 participants (S1, S2, S3, S5, S6, S7, S8, S9, S11, S13, and S17) expressed that writing the script and putting together the information in a PowerPoint format were the easiest things to accomplish. Seven participants (S4, S10, S12, S14, S15, S16 and S18) considered that recording the video podcast was the easiest thing to do. When consulted about the hardest thing to accomplish, their views were more varied. S4, S5, S7, S10, S14, S15, S16 and S18

expressed that doing the research and having the material ready was the hardest thing. S2 and S3 commented that putting everything under three minutes was quite challenging. S1, S6, S8, S9, S11, S13, and S17 considered that recording the video podcast was the most difficult thing to do, while S12 said that getting his opinion heard by other members of the groups was difficult.

The question that closed this first theme summarized how the participants described the whole process by using an adjective. Some students felt impelled to use more than one. Six participants (S2, S5, S7, S13, S15, and S16) considered the video podcast interesting, while five participants (S2, S3, S9, S10, and S13) agree that the process was helpful. Three participants (S3, S5, and S14) used the adjective beneficial to describe the process. Other adjectives were: Time-consuming (S1, S9); enjoyable (S4, S11); stressful (S4); challenging (S5); fantastic (S6); easy (S6, S7, S13), different (S8, S17); efficient (S11); fun (S16, S17); different (S17); and difficult (S18).

Theme 2: Video Podcasts versus Traditional Methods.

How the students compared both strategies was a critical question to understand why participants preferred one strategy over the other one. The second question, which was followed by four probes, stated: "If you have to compare the creation of a video podcast with traditional drills, such as book activities, language lab, workbook pages, and formative assessments to master a foreign language grammar topic, what in your opinion helps you better understand and learn the grammar topic in question?

Participants overwhelmingly expressed that creating a video podcast helped them better to understand the uses of the verb *to be* in Spanish. From the 18 participants in

both focus groups, 13 agree that video podcasting was a much better strategy (S2, S3, S4, S6, S8, S9, S10, S11, S12, S14, S15, S17, and S18). Four participants (S1, S5, S7, and S13) indicated that using book activities and workbook pages was more helpful in mastering a foreign language grammar topic. Only one participant (S16) said that a combination of both was an ideal way to master grammar.

When those who expressed that video podcasting helped them better were asked about how creating a video podcast was more helpful, their opinions were varied.

S2 stated, "We had a lot more time to go into detail and expand more on the topic. We could listen and involve each other to come to a consensus."

S3 responded, "It put the information in a format that is easy to understand with the addition of examples and even a quiz at the end. It truly helped me to see the information in a way that peaked my interest more than traditional methods."

S4 and S15 stated, "Video podcasts make it easier when you are able to research and create your own video. The student must learn the material in order for them to make a video. The video podcast allows me to show what I have learned and how I have learned the topic."

S8 and S16 stated, "Creating a video podcast allows students to explore the concept themselves rather than listening to a teacher talk or reading from a textbook. They must understand the concept well enough to teach it. It helps me more because the process of creating the video podcast sticks better in my brain."

S9 stated, "Creating a video podcast is more hands on and less boring than the traditional worksheets and ingrains it better into our memory."

S12 responded, “Video podcasting helped me learn the topic better through immersion in it.”

S17 stated, “It helps me better learn the foreign language grammar by giving many explanations. This is a better method because it can be explained to you in many ways instead of one explanation.”

S18 stated, “I prefer creating video podcasts because it is not quiet. I hate silence and that is what the whole room is like while working on paper or activities. The video podcast is exciting because we get to talk.”

When participants were further pressed on why creating a video podcast was a better way to learn foreign language grammar, some new insights were revealed.

S2 and S4 said, “I am a very visual learner who likes hands on ways to learn.”

S6 said, “I enjoy using technology while learning at the same time.”

S8 said, “I enjoy hands on, interactive, challenging activities rather than worksheets or looking at textbooks.”

S12 stated, “Because I immerse myself in it and learn more from it.”

S14 said, “I am an auditory learner and talking about something helps me learn better.”

Those who expressed that the traditional approach helped them learn foreign language grammar better had different opinions about the reasons for such preference. S1 indicated that, “having notes to be able to copy and rewrite is a great way to study and understand grammar.”

S5 said, “With the traditional drills, my teacher was much more involved compared to the video podcasts. I can learn better from teacher’s explanations and then practicing on paper.”

S7 stated, “I prefer worksheets because I can spend more time studying by reading and writing.”

When insisted for more reasons for this preference, only two participants (S5 and S7) responded, “Because I learn better using workbook practices.”

Theme 3: Cooperative Learning.

An important aspect of students creating a video podcast is allowing students of mixed levels of ability to work in groups rather than individual students doing the whole project. To find students’ opinion about how working collaboratively impacted on their performance, the following interview question 3 with three probes were elicit: “How can creating a video podcast with other students help or hinder you from mastering a new grammar concept?”

While most participants agree that working in group was beneficial and helped them mastering the new grammar topic, some students (S1, S3, S4, S8, and S9) expressed concerns such as finding some participants too passive and not willing to engage in the conversation. Thirteen students shared their views about how working in groups helped them.

S2 said, “Working with others was extraordinary beneficial because the combination of such unique ideas generated and incredibly successful outcome.”

S5, S6, S7 stated, “In my experience, my partners helped me because they better understood the topic and we like working in groups.”

S11, S12, S14, S15 said, “By providing others similar to you the opportunity to ask questions about the topic, and gave us the opportunity to help each other.”

S13, S16, S17 stated, “It helps me to understand how others understand foreign language grammar, and to listen to their ideas and better ways to do something.”

S18 said, “I am talking with people about the topic and I understand better listening over reading.”

When participants were asked about how each member contributed with the creation of the video podcast, they unanimously indicated that each member was in charge of writing the script, creating the slide, and recording for one particular section of the video podcast, but worked together in reviewing and explaining others their the topic in charge.

Selecting an ideal group member, if they were allowed to do so, for this type of multimedia presentation was asked to participants. To guide their selection students were specifically asked for what of the following three characteristics they would prefer a member in their group to have:

1. A student who can put things together (a leader).
2. A student who has a very good understanding of the grammar in question.
3. A student with experience in creating video podcasts.

Nine participants (S1, S3, S4, S6, S7, S11, S12, S17, and S18) agree that a student with very good understanding of the grammar in question was the most important characteristic when selecting a member for their group. S5 said that the most important

thing in the whole project is to understand the topic being presented, and having a student who knows the topic is an advantage. Students who agree with S5 unanimously believed that such person is essential to help others to understand the topic. Six participants (S5, S9, S10, S13, S14, and S16) considered that a student with experience in creating video podcasts was more important. Since creating a video podcast was a relatively new experience for most participants, having a person knowing what to do was more beneficial. Only three participants (S2, S8, and S15) selected the first option. They indicated that a leader, a student who can put things together, was the most important characteristic. S2 believed that without a leader the group would be very disorganized. She added, "Someone does not need to know the grammar because the project is about learning the topic, not already knowing it." When participants were asked about ranking the three characteristics in first, second, and third place, having a student with good understanding of the grammar in question came into first place with 9 votes (S1, S3, S4, S6, S7, S11, S12, S17, and S18). Having a student acting as a leader in their group was the second most important characteristic with 15 votes (S1, S3, S4, S5, S6, S7, S9, S10, S11, S12, S13, S14, S16, S17, and S18) while having a student with experience in creating video podcast was the least important with 12 votes (S1, S2, S3, S4, S6, S7, S8, S11, S12, S15, S17, S18).

Theme 4: Learning by Teaching

The study sought from participants their opinion about the following statement: "When students teach other students, they reinforce their own understanding of material, and are forced to face elements of a concept that might not be clearly understood."

All participants agree that when students teach other students, they reinforce their own understanding of the material in question, and are forced to face elements of concept that might not be clearly understood. Participants commented this statement as follows:

S1 said, “A student may think they understand the material, but someone else in the group may point out their mistakes.”

S2 stated, “I believe that teaching other students allows them to have to thoroughly understand what they are talking about. Therefore, reinforcing what need to be accomplished.”

S3 said, “I believe this is extremely true. Personally, whenever I have helped other students, I become aware of the content I do and don’t quite understand so that I, myself, can grow in the knowledge as well.”

S7 said, “I agree because teaching the concept forces the student to look at the topic from many different angles, figuring out how to word their thoughts and ideas into coherent explanations.”

When students create a video podcast in a foreign language class, explaining a grammar topic to others becomes an essential part of the project. Participants were asked about how they could have a better understanding by just explaining to others what they have learned. The responses to this question provided some insights about how learning to teach can be beneficial from students’ perspective.

S1 said, “It is by repeating and applying the information. If you can apply the information to other situations, then you really know it.”

S2 and S8 stated, “It reinforces the material because I have to know it well enough to successfully explain it to others.”

S3 and S11 said, “It brings to your attention what you truly know and don’t know, what you can or can’t seem to explain. It gives you a platform in which you can access your own level of knowledge on a concept.”

S5 said, “It gives you the opportunity to really analyze if what you know about the topic is right or wrong and thoroughly explain it.”

S7 said, “You are required to ‘voice’ just exactly everything you know; you can summarize what you have learned and assess how well you know the concept.”

S12 said, “It gives me new perspective on my understanding of the topic.”

Participants in the focus group were asked for a particular concept in regard of the verb *to be* in Spanish they have learned from another member of their group while designing and creating the video podcast. Seven participants stated that they learned everything by themselves (S1, S6, S7, S13, S14, S15, and S16), but the other 12 students indicated that conjugating the verbs in Spanish, and understanding the uses of both forms were some of the new concepts or elements they learned from others.

The theme of cooperative learning was completed by asking participants about how they felt about explaining other students something of which they had a clear understanding. Students unanimously expressed that they feel great, good, and comfortable explaining other students what they understand. S4 and S17 added that despite of feeling great, some level of stress is always present when hoping that a classmate can understand the material.

Theme 5: Creating Video Podcasts in other Subject Areas.

Video podcasting is a multimedia learning tool that might be useful in other subject areas in K-12 learning. Besides the use of video podcasting in foreign language instruction, some reports have associated the use of video podcasting with English language arts, science, social studies and music, and have indicated that such subjects are suited disciplines for using this technology (Coutinho and Motta, 2011). The study wanted to explore the students' perception about the potential benefits of creating video podcasts in other subject areas. Participants were asked: "How might creating video podcasts benefit your learning experience in other subjects?"

First, all participants unanimously agreed that creating video podcasts in other subject areas can be very beneficial. S3 said, "For the same reason of the project in grammar. This is a way to put information in a format easy to understand. Great for review as well." S18 stated, "Video podcasting would be great in other subject areas because it is an exciting way to learn, I am more focused and not bored."

When participants were asked for a particular subject that they believe that creating video podcasting could be more beneficial, seven students indicated that Math was the subject to choose (S1, S3, S8, S9, S11, S17, and S18). Science was in second place with five votes (S6, S7, S13, S14, and S16). Social studies was followed with four votes (S2, S4, S10, and S12), and Language arts with two votes (S5, and S15).

Finding the reasons for such selection was the purpose of the following probe that asked students about how creating video podcasts may help them better in learning such particular subject? Even though students responded accordingly to the subject of choice, they agree that the opportunity they have to show step by step any process or new

concept on a video format can be very helpful to learn pretty much anything. Students who select Math (S1, S3, S8, S9, S11, S17, and S18) as a desirable subject to incorporate this learning tool indicated that solving problems with clear directions on how to do it, solving equations, vertex form of parabolas, and graphing quadratic equations would help them greatly. S11 and S14 agree that by creating a video podcast in other subjects would help them to remember specific details that are easily forgotten. The civil war and other wars, atoms, elements, and grammar in general were also mentioned by participants.

Chapter 5

Conclusions, Implications, Recommendations, and Summary

The conclusions, implications, and recommendations are based on the results gathered from the sequential-explanatory study data collection. The mixed methods approach used resulted in a triangulation of the quantitative and qualitative data analyses. The triangulation process used data from multiple sources, and data analyses to check the validity of the findings. After analyzing the results, a set of conclusions were listed for each research question.

The recommendations are based on qualitative findings from participants on two focus group interviews that shared their understanding, experiences and views concerning the use of student created video podcasts in learning foreign language grammar.

Conclusions

The five research questions address multimedia design, cognitive theory of multimedia learning, student-created video podcasts, foreign language grammar acquisition, and how video podcasts may promote student achievement in other subject areas. Following is a summary of the answers to the overarching research questions.

Research Question 1: What has been reported in the literature about multimedia development by students and its effect on learning?

A comprehensive review of the literature about multimedia development by students and more precisely about video podcasting designed and developed by middle school students and its effects on learning was conducted to address the need for the current research. Although podcasting, including all of its forms, is a fairly new technology, the current literature evidence a fast growing use of podcasting and video podcasting in many fields, including education, particularly in higher education. Kay (2012) provided a comprehensive review of research on video podcasts since 2002. From a total of 53 studies on video podcasting, only two studies have gone beyond the passive mode of watching teacher-produced content to one that engage students in the process of creating video podcasts. The review evidenced the need for research on video podcasts when created by students and its effects on learning. The leading sample population examined by Kay (2012) also revealed the need for research of video podcasting in middle school. Fifty of the 53 studies on video podcasting consisted of undergraduate students, while only three studies focused on middle school students using or developing such artifact.

Although research linking video podcasting to learning outcomes in middle school is still limited, the review found that some studies showed that students in general agreed on the value of video podcasting as a learning tool (Hew, 2009; McGarr, 2009; Heilsen, 2010; Popova & Edirisingha, 2010; Kay, 2012; Hur & Suh, 2012). These findings has been persistently questioned in the literature reviewed for the use of empirical research methods that are merely based on questionnaires and interviews without conducting proper and suitable experiments that answer the fundamental question

about how video podcasting can improve teaching and learning in middle schools (Hur & Suh, 2012).

Student-generated podcasts emerged from the literature as a technology that promotes active learning through student engagement with content for the goal of concept attainment with knowledge creation. Crow (2009) suggested that the level of engagement in student-generated podcasts is perhaps the greatest benefit that this technology provides to students. Sprague and Pixley (2008) also reported about the benefits of creating video podcasts. They argued that students learn to communicate successfully and speak effectively when they create the podcasts.

Piecka et al. (2008) conducted a project with the purpose of understanding if the development and use of student-generated video podcasts had effect learning in a seventh-grade grade science classroom. The study revealed several insights about other potential benefits of using student-generated video podcasts in middle schools (see Appendix B).

Research Question 2: What learner-centered learning theory will be used as a theoretical framework by foreign language middle school students to guide the creation of the video podcasts?

The review of literature helped to identify the Cognitive Theory of Multimedia Learning (CTML) as a suitable learner-centered learning theory that served as a theoretical framework that guided middle school students in the creation of the video podcasts for the current research. The CTML is a learner-centered learning theory proposed by Mayer (2005) that incorporates previous theories on how people learn.

Based on Baddeley's model of working memory, Paivio's dual coding theory, and Sweller's theory of cognitive load, Mayer (2005) asserts that students learn better when words and pictures are used together in instruction than from words alone.

Although video podcasting is a technology that may drive instructional designers to develop technology-centered lessons, Sorden (2013) argued that this instructional method cannot be considered a technology-centered approach, but a multimedia instructional method that promotes meaningful learning. Such meaningful learning, according to Mayer (2010) occurs when the learner engages in five cognitive processes that include selecting and organizing relevant words and images for processing verbal and visual working memory, organizing selected words and images into verbal and pictorial models, and the final integration of such representations with prior knowledge.

Koehler et al. (2011) argue that well-designed multimedia presentations should allow learners to build mental connections between verbal and pictorial representations that stimulate their cognitive abilities to facilitate the construction of inductive reasoning schemas. They conclude that effective multimedia presentations that are grounded on cognitive theories should promote not only conceptual understanding of passive voice grammar, but help learners in transferring the grammar concept of passive voice to procedural knowledge.

From a constructivist approach, meaningful learning occurs when students are encouraged to actively engage in the construction of new knowledge structures through experience (Ng'ambi & Lombe, 2012). Student-generated video podcasts have emerged as a multimedia instructional strategy that has been associated with promoting learning

through student engagement with content (Crowe, 2009). Such level of engagement provides more opportunities to students to experience and retain content.

Brown (2007) found that when students are allowed to design and create multimedia presentations, a high level of motivation and task engagement is exhibited. Students also develop other critical skills, such as higher order thinking, and self-reflection. Liu et al. (2011) also found that engaging students as multimedia designers could increase their intrinsic motivation, which is highly correlated with their academic success.

In this regard, Baturay et al. (2010) suggest that effective interaction with multimedia learning stimulate and sustain student motivation and help them perform better with complex grammatical concepts. Although multimedia learning seems to provide an ideal environment to develop the necessary skills to produce a comprehensible language output, Ibrahim (2012) cautions that as learning foreign language grammar is intrinsically complex, it can be very demanding for the learners' cognitive system. He suggests that an effective instructional design needs to consider the cognitive capacity for active knowledge construction. Brünken et al. (2002) proposed that an ideal design of multimedia learning should minimize requirements of extraneous load and maximize the potential for deep cognitive processing during learning.

Grounded on the principles of the CTML, Ibrahim (2012) suggests that the use of video podcasting as an instructional multimedia may help learners free up cognitive load with the purpose of organizing and integrating information more effectively as well as efficiently and ultimately improving the students' learning. The use of video podcasting has been specifically associated with helping students in gaining deeper learning and

improving student performance as they can combine visual and auditory representations into a single multimedia presentation (Walker et al., 2011).

A critical component for the selection of the CTML was the incorporation of six of the twelve multimedia instructional principles identified by Mayer (2009) to create the video podcasts. The students were instructed about these principles to minimize extraneous load and maximize potential for deep cognitive processing. The six multimedia instructional principles included:

1. Pre-training: As this principle asserts that students learn more deeply from a multimedia presentation when they learn key components and characteristics of the main concepts, the instructor took the time to introduce the basics of the verb *to be* in Spanish and the existence of the two forms *ser* and *estar*.
2. Segmentation: To avoid long complex rationalizations in a continuous presentation, students were instructed to control the pace of presentation by breaking the material into five brief segments that included: definitions, explanations, examples, practice, and examination.
3. Coherence: To enhance focus on the essential material, participants were asked to eliminate extraneous material that could cause distraction during the presentation.
4. Signaling: Participants were instructed to include cues to highlight the uses of verbs *ser* and *estar*. Students used titles and headings to label the segments, charts to introduce the conjugations, and bold text to highlight critical information.

5. Personalization: Students used a conversational style during the presentation to heighten students' attention.
6. Temporal contiguity: Participants were encouraged to use relevant graphics to enhanced words and construct mental models by connecting both materials. The graphics and narration were presented simultaneously rather than successively.

Research Question 3: What differences in terms of achievement exist between middle school students who create a video podcast to promote foreign language grammar acquisition and students who follow a traditional instructional approach?

The quantitative phase of the explanatory sequential design (Creswell & Plano Clark, 2011) was the methodological approach used to assess whether the treatment condition influenced an outcome. A double-pretest and posttest were administered.

To establish if the use of student-created video podcasts by middle school students had a significant effect on foreign language grammar acquisition in comparison with students who were given traditional instructional approach to learn foreign language grammar, a posttest was administered to assess the differences between the two groups. The scores of the posttest were analyzed by following the *t*-test as a group comparison statistic. Although the mean for the experimental group was slightly higher than the control group on the posttest, an independent *t* test revealed that a mean difference of -4.697 was not statistically significant different at the 0.05 level between the mean posttest scores of the control group (n = 34, M = 0.48, SD = 20.303) and the experimental group (n = 33, M = 74.18, SD = 18.009).

An independent sample *t*-test on the posttest revealed a 2-tailed value of .324 to confirm that that there was no significant difference in foreign language grammar acquisition between the two groups, since it was significantly higher than alpha value of .05. Thus, the results indicated that the use of student-created video podcasts by middle school students had no significant effect on foreign language grammar acquisition.

Although the results showed that student-created video podcasts by middle school students did not significantly affect student percent gain scores, the benefit of student-created video podcasts on students' attitude toward the use of this new technology appears to be positive.

Questioning why a difference between control group and experimental group did not arise, the group of local experts, including two eighth grade homeroom teachers from the gifted team and two eighth homeroom teachers from the regular team were inquired about their opinion for such results. Quantitative and qualitative data were provided to each member such that they had the opportunity to analyzed the information and formulate their own assessment concerning the lack of difference between both groups. After much discussion, members agreed that such lack of difference may have been present due to the rigorous hard work and great performance that students in the Spanish class are used to. The Spanish class at Osborne Middle School is comprised of 70% of students that have been receiving gifted education since elementary school. This factor was considered the most critical as the gifted students in the Spanish class are among the top 10% of all eighth grade-gifted students at the school who are used to challenging themselves to excel in every subject and task on a daily basis. Regardless of being in the control group or the experimental group, the group of experts considered that students did

their best because they are used to working very hard. The other 30% of students in the Spanish class are all regular students who are members of the honor roll at the school. These students, as the gifted counterparts, are high achievers that work very hard regardless of the strategy used. This factor may have been the main reason for such lack of difference.

Research Question 4: How do the interviews with students help to understand their experiences when using a student-created video podcast as an instructional strategy to promote foreign language grammar acquisition?

The qualitative phase of the explanatory sequential design (Creswell & Plano Clark, 2011) was the methodological approach used to understand how students experienced this learning strategy. The qualitative approach consisted of two focus group interviews to collect shared understanding, experiences, and views from different participants that were selected from the experimental group using the purposeful sampling approach. An interview protocol that used five open-ended questions and 18 probes was the strategy to follow in a focus group interview to collect the data.

During the focus group interviews, open-ended questions were used to allow participants to voice their experiences without any constraint. Participants were encouraged to talk, interact, and cooperate with each other. Their answers were recorded and data transcribed for analysis. Using the five open-ended questions during the focus group interviews, the data were grouped in five themes that add valuable insights to understand how students experience this learning strategy.

Theme 1: Creating a Video Podcast

It is significant that 89% of the students interviewed, expressed that their experiences in creating a video podcast were very positive. The three most recurrent adjectives used by the participants to describe in general their experience on creating a video podcast to explain a foreign language grammar topic were interesting, helpful, and beneficial. The participants in general agree that creating a video podcast helped them to learn better as they were able to engage themselves in the learning process.

When participants were specifically asked about the easiest thing to accomplish during the process of creating a video podcast, 61% expressed that writing the script and putting the information in a PowerPoint format were the easiest things to accomplish, but when consulted about the hardest thing to accomplish, 44% agree that doing the research was the hardest thing. This is significant as the other 56% expressed various reasons that included working in groups, recording the video and putting all the material in a video podcast format no longer than three minutes.

The question that closed this first theme summarized how the participants described the entire process by using an adjective. Interesting was the most common adjective followed by helpful, beneficial, time-consuming, enjoyable, stressful, challenging, fantastic, easy, different, efficient, fun, different, and difficult.

Theme 2: Video Podcasts versus Traditional Methods.

When students were asked to compare creating a video podcast with the traditional approach for learning grammar, they overwhelmingly expressed that creating a video podcast helped them better to understand the forms and uses of the verb *to be* in Spanish. While 72% agree on video podcasting, 22% believe that by doing the traditional

activities from textbook and workbook activities they can learn better a foreign language grammar topic. One participant expressed that a combination of both was an ideal way to master grammar.

Among the reasons for selecting the video podcasts over the traditional approach, students said that they enjoyed working in groups and having more time to truly master the material by exploring the concept by themselves instead of listening to a teacher. When participants were questioned on why creating a video podcasting was a better way to learn foreign language grammar, students indicated that video podcasting was great for visual learners. They enjoyed using new technologies, participating in hands on activities, interactive activities and activities that in general challenge them. Those who expressed that the traditional approach helped them learn foreign language grammar better showed their preference for having notes and plenty of workbook practices to master the topic.

Theme 3: Cooperative Learning.

Most participants agree that working in group was beneficial and helped them mastering the new grammar topic. Only 28% expressed that having active participants and not mere listeners in their groups was quite challenging. Students that favor working in groups agree that listening other ideas and discovering how others understand grammar was very beneficial. When they were asked about the most important characteristic to keep in mind when selecting a group member, 50% agree that a student with a very good understanding of the grammar in question was the most important characteristic. A member with some experience in creating a video podcast was the second most important

characteristic, while having a leader who can put things together was the last option. One participant believed that without a leader the group would be very disorganized. She added, "Someone does not need to know the grammar because the project is about learning the topic, not already knowing it."

Theme 4: Learning by Teaching

All participants agree that when students teach other students, they reinforce their own understanding of the material in question, and are forced to face elements of a concept that might not be clearly understood. One of the participants nicely summarized their general belief about learning by teaching when she said, "I believe this is extremely true. Personally, whenever I have helped other students, I become aware of the content I do and don't understand and I, myself, can grow in the knowledge as well."
The students added that by repeating and applying the information in other situations, they can determine the level of knowledge and understanding. It really gives the opportunity to know if you are right or wrong. When students were specifically asked about their experience with the verb *to be,* 67% students indicated that conjugating the verbs in Spanish, and understanding the uses of both forms were some of the new concepts or elements they learned from others.

The theme of cooperative learning was completed by asking participants about how they felt about explaining other students something of which they had a clear understanding. Students unanimously expressed that they feel great, good, and comfortable explaining other students what they understand. Two participants added that

despite of feeling great, some level of stress was present when hoping that a classmate can understand the material.

Theme 5: Creating Video Podcasts in other Subject Areas.

The conclusions that emerged from the question about how creating video podcasts may benefit students learning experience in other subjects will be included in the following research question.

Research Question 5: How can the experiences that emerge from the quantitative and qualitative data be useful to promote student achievement in other subject areas?

Results from the quantitative phase and the qualitative phase of the explanatory sequential design (Creswell & Plano Clark, 2011) were used to follow up with participants' experiences to explore possible applications of using video podcasts in other subject areas to promote student achievement. The fifth question of the focus group interview specifically asked students: How might creating video podcasts benefit your learning experience in other subjects?

The participants unanimously agreed that the experience of creating video podcasts in the foreign language class could be replicated in other subject areas. They expressed that video podcasting can be very beneficial in other subjects as they can put the material in question in a multimedia format easy to understand. They said that video podcasting is an exciting way to learn that allow them to be focused and not bored. Also for the opportunity they have to learn pretty much anything by showing step by step any process or new concept on a video format.

When participants were asked for a particular subject that they believe that creating video podcasting could be more beneficial, 39% selected Math as the subject that can be more benefited. Science was in second place with 28%, Social studies with 22%, and Language arts with 11%. Students who selected Math indicated that solving problems with clear directions on how to do it, solving equations, vertex form with parabolas, and graphing quadratic equations would be topics in which they believe creating video podcasts would helped them greatly.

Implications

Although literature on video podcasting indicates that video podcast pedagogy has been the least researched (Kay, 2012), the findings revealed are consistent with the existing literature regarding the benefits of using student-created video podcasts. The findings may encourage teachers from all levels to use student-created video podcasts to promote active learning through student engagement with content for the goal of concept attainment with knowledge creation. The investigation confirmed that the level of engagement in student-generated podcasts is perhaps the greatest benefit that this technology provides to students as previously suggested by Crow (2009).

The findings also open the door to further investigation on the effective use of student-created video podcasting as a pedagogical strategy to promote student achievement. From the three pedagogical strategies on video podcasting that emerged from the literature reviewed, the receptive viewing is the most common strategy. The receptive viewing delivers teacher-directed information to be viewed in a relatively passive manner by students. The problem-solving, also known as worked example, is the

second most popular podcasting strategy that delivers teacher-developed information on how to solve specific problems. The student-generated video podcasts is the last and most uncommon strategy in which students plan and create their own academic-based video podcasts (Kay, 2012).

Considering that student-generated video podcasting is the least researched of the three pedagogical strategies reveals that more research is needed to examine how the creation of video podcasts as a pedagogical strategy influences learning. The findings are consistent with the few studies reviewed in the literature that indicate that the creation of video podcasts may promote better understanding with the learning material. The findings are also consistent with recent discoveries from higher education concerning the effects of student-generated video podcasts, such as improving enquiry-based and independent learning, but should be replicated and validated in other areas at the middle school level.

The study of video podcasts created by students as a pedagogical strategy in middle schools is important to a broad constituency. The new challenges to promote a higher thinking level and engagement allow teachers from all segments in K-12 to be more receptive to utilizing innovative technologies available for 21st century learners such as the one proposed on this research. As stated by Crow (2009), not only educators, but students are more receptive to learning and teaching with these cutting edge technologies.

Aligned with the constructivist theory that indicates that learning occurs when learners actively construct their own knowledge (Bruner, 1960), by providing opportunities and contexts to make sense of what is to be learned (Duffy & Jonassen,

1991), the study assists educators in considering if student-created video podcasts can encourage students to generate their own representations of knowledge that is conducive toward effective learning and student achievement. The study was justified in targeting whether student-created video podcasting is still a viable learner-driven strategy that can be implemented in middle schools with the purpose of promoting student achievement.

Recommendations

The investigation resulted in a fair number of recommendations acquired from the sequential-explanatory study that revealed good practices and the adoption of a valuable learner-centered learning theory and its principles when using video podcasting to promote foreign language grammar acquisition. These recommendations were grouped by following findings from the research questions and participants' submissions during the focus groups interviews. They should not be considered as persuasive evidence that if implemented will lead to improve student achievement.

Recommendation # 1: Multimedia Development by Students

Although results indicated that the use of student-created video podcasts by middle school students had no significant effect on foreign language grammar acquisition, students agree on the value of creating video podcasting as a learning tool. The study backs previous findings on the benefits of using multimedia development by students as the ones described by Coutinho and Mota (2011), Hur and Suh (2012), Kay (2012) and earlier by Piecka et al. (2008). (See Appendix B). The study found that the level of engagement in student-generated podcasts is perhaps the greatest benefit that this

technology provides to students. Active learning was promoted through student engagement in cognitive processing to foster meaningful learning, and as described by Sorden (2013), students focused their attention on relevant information that once integrated with prior information was organized into new coherent mental structures to explain the uses of the verbs *ser* and *estar*.

Recommendation # 2: Using Selected Principles of CTML for Student-created video podcasting

The study took into consideration that the foreign language grammar topic in question was a very complex topic to master for middle school students. Such complexity demanded a high cognitive capacity for active knowledge construction from students. When looking for an ideal learning theory that help students to minimize the requirements of extraneous load and maximize the potential for deep cognitive processing during learning, the CTML seemed to be the ideal learner-centered learning theory to follow.

The study found that following the CTML principles of pre-training, segmentation, coherence, signaling, personalization, and temporal contiguity in the creation of the video podcasts helped students to build mental connections between verbal and pictorial representations that stimulate their cognitive abilities and facilitate the construction of inductive reasoning schemas. Therefore, the CTML appears to be an effective multimedia learning theory that should promote not only conceptual understanding of passive voice grammar, but help learners in transferring the grammar

concept of passive voice to procedural knowledge when used by students to create a multimedia presentation such video podcasting.

Recommendation # 3: The Adoption of the Student-created video podcasts in Foreign Language Grammar Instruction.

As previously indicated, although this study found that student-created video podcasts did not significantly affect student percent gain scores, the benefit of student-created video podcasts on students' attitude toward this new technology appears to be an effect. It is significant that students have expressed that their experiences in creating a video podcasts were very positive and found this learning experience interesting, helpful and beneficial. Even more significant is that students overwhelmingly expressed that creating a video podcast helped them better to understand a complex grammar topic than if following a traditional approach for learning grammar. Therefore, this study recommends foreign language grammar teachers the use of student-created video podcasts as a multimedia instructional strategy and a multimedia learning tool to enhance foreign language grammar acquisition by middle school students.

Recommendation # 4: Using the Student-created video podcasts to Promote Student Achievement in other Subject Areas.

As participants unanimously agreed that the experience of creating video podcasts in the foreign language class helped them better to understand a complex grammar topic, they also agreed that such experience could be replicated in other subject areas. This recommendation is consequent with previous findings that suggest that use of student-

generated video podcasts may have a positive effect in other subject areas such as math, science, social studies, and language arts.

Consequently with these recommendations, future studies measuring the impact of this technology in other k-12 subject areas are needed. As the review of literature revealed, less is known about the effects of direct involvement of students in designing and creating video podcasts with the purpose of promoting student achievement (O'Bannon et al., 2011; Abdous et al., 2012; Hasan & Hoon, 2013). While higher education captures most of the sample population in previous research, other segments of the student population, such as K-12 and more specifically the middle school level, are scarce in the literature and deserve time and attention (Kay & Edwards, 2012; Santos-Green et al., 2014; Shankar-Brown & Brown, 2014; Chen & Wu, 2015).

Summary

Grammar is an essential aspect of language for effective communication, but at the same time, it is one of the most challenging issues in foreign language instruction. According to Mart (2013) learners cannot develop their language skills with little understanding of how language functions. Grammar is in this context an essential aspect to communicate effectively. Philip et al. (2010) propose that peer interaction might facilitate grammar acquisition by fostering learner production with appropriate feedback and noticing of form, which is the conscious attention of new grammatical features due to the frequency or salience of the feature.

Koehler et al. (2011) suggested that well-designed multimedia presentations should allow learners to build mental connections between verbal and pictorial

representations that stimulate their cognitive abilities to facilitate the construction of inductive reasoning schemas. They concluded that effective multimedia presentations that are grounded on cognitive theories should promote not only conceptual understanding of passive voice grammar, but help learners in transferring the grammar concept of passive voice to procedural knowledge.

The use of video podcasting has been specifically associated with helping students in gaining deeper learning and improving student performance as they can combine visual and auditory representations into a single multimedia presentation (Walker et al., 2011). However, very few studies about video podcasting in middle schools have gone beyond the passive mode of watching teacher-produced content to one that engage students in the process of creating video podcasts (Lee et al., 2008). The involvement of middle school students in planning and creating their own video podcasts and how this engagement may promote active learning has not been adequately considered. Therefore, the problem identified was the need to investigate the effects of video podcasts created by students to promote foreign language grammar acquisition at the middle school level and find how students described such experience.

The goal of this explanatory sequential design was to determine the effectiveness of video podcasts created by students as a multimedia instructional strategy to promote foreign language grammar acquisition at the middle school level. In order to achieve the transfer of passive voice grammar into procedural knowledge and promote communicative goals in foreign language instruction, selected principles of CTML guided the design of the video podcasts by middle school students to minimize extraneous load and maximize potential for deep cognitive processing.

The researcher used the explanatory sequential design. This mixed methods strategy uses a qualitative strand to explain initial quantitative results (Creswell et al., 2003). The study required the development and use of instruments for both phases with the corresponding collection and analysis of the quantitative and qualitative data. During the quantitative phase, a double- pretest and posttest design approach to a quasi-experimental design were used to collect quantitative data (Bell, 2010). During the qualitative phase, the focus group interview approach was used as the primary form of data collection. Open-ended questions were used to allow participants to voice their experiences without any constraint.

Participants were 66 middle school students taking Spanish I as a foreign language at Osborne Middle School in Gwinnett County, Georgia during the 2015-2016 school year. The participants were equally divided by the school in two groups of 33 each. They first took two district-approved grammar assessments for the selected topic as a double-pretest to assess their general knowledge of the foreign language grammar in question (see Appendix C, D and E). The next step was to apply the treatment conditions. At the beginning, both groups received the same traditional form of grammar instruction by the Spanish teacher, who was also the researcher. Then, the control group continued using the traditional practice to master the selected vocabulary and grammatical concepts while the experimental group was instructed in the process of developing a student-created video podcast about the grammar topic selected for this study (see Appendix J). Participants in the experimental group were also instructed about the use of six multimedia design principles of CTML to minimize extraneous load and maximize potential for deep cognitive processing. During this step, the process was

closely monitored to minimize threats to internal validity as suggested by Creswell (2008). The final step in the quasi-experimental research was to assess whether the treatment condition influenced an outcome. A posttest was administered to assess the differences between the two groups (see Appendix A, B, and C). The resulting data were analyzed using paired samples *t*-test.

The qualitative approach consisted of two focus group interviews to collect shared understanding, experiences, and views from different participants that were selected from the experimental group using the purposeful sampling approach. During the focus group interviews, five open-ended questions were used to allow participants to voice their experiences without any constraint. Their answers were recorded and the data transcribed for analysis. During the last step of the explanatory sequential design, the qualitative results were used to add insights to the quantitative results.

As quantitative and qualitative researches pursue different approaches to gathering and analyzing data, reporting their findings required the use of different approaches as well. Although the use of tables and figures has been conventionally used to represent quantitative results, the summaries were also presented in statements that summarize the statistical results. Findings were summarized by using succinct sentences and provided sufficient information in order to present a complete picture of the results.

Qualitative findings were reported using a narrative discussion. The narrative served as the way to build a discussion that revealed the identified themes or categories from the students' responses.

The quantitative data revealed that there was no statistically significant difference between the mean pretest scores of both groups on pretest 1. Concerning pretest 2, the

Sig. (2-tailed) showed a *p* value of .990, higher than *alpha* value of 0.05. This result shows that there was no statistically significant difference between the mean pretest scores of both groups on pretest 2 as well. Although mean scores on pretest 2 show a lower performance, which was expected considering that this instrument consisted of a more complex assessment than pretest 1, the mean scores were very similar for both groups. These results indicated that despite of having nonequivalent groups, they were comparable and that both groups were maturing at similar rates from pretest 1 to pretest 2. To confirm if the variances of the groups were significantly different or not before treatment, a test of homogeneity of variances on pretest 1 and pretest 2 were performed and satisfied via Lavene's *F* test with one-way ANOVA. The *p*-value of 0.665 indicated that the variances were very similar. These findings confirmed the homogeneity of both groups previously reported from the equality of variances in the independent sample *t*-test. These results confirmed that both groups were very similar, and that both groups were maturing at similar rates from pretest 1 to pretest 2.

To establish if the use of student-created video podcasts by middle school students had a significant effect on foreign language grammar acquisition, the scores of the posttest were analyzed. Descriptive statistics showed that the mean for the experimental group was slightly higher than the control group on the posttest. With a mean difference of -4.697, the next question was to confirm if this difference was statistically significant. An independent *t* test was conducted to determine if a difference existed between the mean posttest scores of the control group and the experimental group. The analysis showed that was no statistically significant difference between the mean posttest scores of the control group. The Sig. (2-tailed) value of .324 indicated that

there were no significant differences in foreign language grammar acquisition between the two groups, since it was significantly higher than alpha value of .05. Thus, the results indicated that the use of student-created video podcasts by middle school had no significant effect on foreign language grammar acquisition.

The qualitative data analysis involved a thematic analysis from students' open-ended responses from two focus groups. Five key themes emerged from students' responses that included how students described their experience of creating a video podcast, their opinion about what learning approach toward grammar was more helpful, how creating a video podcast help them or not to master the new grammar concept, their opinion about learning by teaching and finally, their opinion about using this multimedia presentation in other subject areas.

The participants expressed that their experiences in creating a video podcast were very positive by using adjectives such as interesting, helpful, and beneficial. They overwhelmingly expressed that creating a video podcast helped them better to understand grammar in Spanish than using traditional approaches for the same purpose. Participants agree that working in groups was beneficial and helped them mastering the new grammar topic. Listening to other ideas and discovering how others understand grammar was considered the main reason for such agreement. Concerning learning by teaching, all students agreed that when they teach other students, they reinforce their own understanding of the material in question, and are forced to face elements of a concept that might not be clearly understood. Finally, students unanimously agreed that the experience of creating video podcasts in the foreign language class could be replicated in other subject areas.

These findings not only attempted to answer the research questions about the use of video podcasting in foreign language grammar instruction but helped the researcher to identify some recommendations for future practice in the field. The inclusion of these recommendations may help to enhance foreign language grammar acquisition by middle school students.

Appendix A: Uses of Video Podcasting in Middle School

For discovering new things	To improve meaning and understanding
For conducting interviews	To provide a fun way to learn by using new technologies
For generating ideas and putting things in action	To allow students to exercise teamwork in searching for common understanding and meaning
To collaborate with new data	To improve performance
To review, edit, and evaluate work in progress	To allow students become their own teachers and apply new knowledge
To provide learners with an opportunity to work with other students in the creation of an audio-visual product	To give students the opportunity to present their own knowledge by using new tools and skills
To examine and consider new ideas for using digital tools	To help students master their research and technical skills while acquiring a better understanding of new content
To provide cross-cultural and global collaboration	To help students develop the art of effectively using their voice to share new findings with the class and the world
To provide an option for text based communication	To enhance the construction of knowledge and learning

As suggested by Piecka et al. (2008).

Appendix B: Benefits of Using Student-generated Video Podcasts in Middle School

Helping hone the students' vocabulary	Helping students develop confidence in what they are learning
Helping the students' writing, editing, public speaking, presentation skills, communication, time management, problem solving	Providing an opportunity for students to become better learners by turning them into teachers
Providing additional resources for students seeking "how to"	Helping students in setting high standards
Complementing traditional textual materials	Promoting student-centered learning
Providing alternative learning paths for students	Helping students become researchers
Students taking pride in creating their video podcasts and posting them over the internet	Helping students use other ways to report their findings
Students seeing themselves as broadcasters	Allowing students to expand their audience beyond the school
Helping students develop self-confidence: being sure of themselves and their team members	Allowing students to learn at their own pace without being subjects of ridicule
Allowing students to determine their own frequency requirements	Helping students to stay actively engaged in sharing, discussing, and learning from one another

As suggested by Piecka, Studnicki, & Zuckerman-Parker, (2008).

Appendix C: Pretest and Posttest: Verb *Ser*

Gwinnett County Public Schools
Foreign Language Grammar Assessment
Spanish I - The verb *ser*

Nombre: _____ **Fecha:** _____ **Clase:**_____

Two students are discussing what people in school are like. Complete their conversation with the correct forms of the verb **ser**.

JULIA: —Juan _____ muy artístico, ¿no?

PACO: —Sí, dibuja muy bien. Pero no _____ deportista.

JULIA: —Verdad. Pero Marta y Vanesa _____ muy deportistas. Y también _____ trabajadoras; estudian por muchas horas todos los días.

PACO: —Qué bien. Nosotros no estudiamos mucho, pero no _____ muy perezosos, ¿verdad?

JULIA: —Sí. ¿Cómo _____ el profesor de español?

PACO: —¿El profesor Domínguez? _____ muy inteligente y la clase _____ un poco difícil.

JULIA: —¿_____(tú) estudiante de español este año?

PACO: —Sí, ¡_____ uno de los estudiantes más inteligentes de la clase!

JULIA: —¡Ja! Y, ¿qué más?

PACO: —Hay unos chicos divertidos en mi clase de matemáticas.

JULIA: —¿Sí? ¿Cómo _____?

PACO: —Se llaman Tulio y Laura, y _____ muy interesantes. Tulio _____ de Nicaragua y Laura _____ de Puerto Rico.

JULIA: —¿Ellos _____ amigos de Antonio?

PACO: —Sí, pero nosotros _____ amigos también.

Prueba 3B-4

Appendix D: Pretest and Posttest: Verb *Estar*

Gwinnett County Public Schools
Foreign Language Grammar Assessment
Spanish I - The verb *estar*

Nombre: _____ **Fecha:** _____ **Clase:**_____

You overheard many questions today using the verb **estar**. Fill in the blanks with the correct form of the verb.

1. —¿Dónde _____ mi mochila?

   — _____ en la clase de tecnología.

2. —¿En qué clase _____ Uds. en la segunda hora?

   —Nosotros _____ en la clase de español.

3. —¡Hola, Juan! ¿Cómo _____?

   —_____ bien, Jorge. ¿Y tú?

   —Regular.

4. —¿Dónde _____ Luisita y María hoy? Ellas no _____ en la cafetería.

   —Luisita _____ en la clase de arte y María _____ en la clase de inglés.

5. —¿Dónde _____ la sala de clases de la profesora Williams?

   —_____ al lado de la sala de clases del profesor Charco.

6. —¿Cómo _____ Ud. hoy, Sr. Pascual?

   —_____ muy bien, gracias, Selena. ¿Cómo _____ tú?

   —Regular.

7. —¿Cómo _____ tú y Juan?

   —(Yo) _____ bien. Juan _____ regular. Nosotros _____ en la clase de español.

Prueba 2B-3

Appendix E: Pretest and Posttest: Verbs Ser and Estar

Gwinnett County Public Schools
Foreign Language Grammar Assessment
Spanish I - The verbs *ser and estar*

Nombre: _____ **Fecha:** _____ **Clase:**_____

Enrique is in a café in Mexico, writing a letter to his friend Francisco. Complete his letter by writing the correct forms of the verbs **ser** or **estar**.

Querido Francisco:

Aqui _____ yo en el restaurante Los Arcos, en Cuernavaca. Los pasteles de aqui _____ muy ricos y la limonada siempre _____ muy sabrosa. Ahora _____ las once de la noche pero yo no _____ cansado. Yo _____ un poco triste porque hoy _____ el cumpleanos de mi mama y ella _____ en Nueva York. Pero, generalmente yo _____ muy contento.

Voy a hablar con Maria por telefono manana. Ella _____ mi prima y _____ muy divertida. Ella _____ en Cuernavaca porque _____ estudiante de la universidad aqui, pero su familia _____ de Veracruz. Veracruz _____ muy interesante y bonita y _____ en el Golfo de Mexico.

Hasta luego, mi amigo.

Enrique

Prueba 5B-4

Appendix F: Focus Group Protocol and Script

Focus Group Protocol and Script

The focus group is a systematic discussion planned to elicit perceptions from a relatively homogeneous group on a defined topic of interest in a supportive, permissive atmosphere (Kruger, 1998).

PHASE 1: BEFORE THE FOCUS GROUP

1. **Purpose**: The purpose is to gather qualitative data about the experiences of middle school students using student-created video podcasts to promote foreign language grammar acquisition in middle school.
2. **Design**
   a. Two focus groups to compare and identify themes that emerge from each discussion.
   b. Each focus group will run between 40 and 60 minutes.
3. **Participants**
   a. Six to nine participants in each focus group.
   b. Selected from the experimental group using the purposeful sampling approach.
   c. Homogeneous group in terms of background (eighth-grade students who experience the creation of a video podcast), but with different academic behaviors such as scores in the pretest and posttest.
   d. Secure names and participation by sending the consent, and assent forms to selected participants.
4. **Questions**
   a. Five general questions will be addressed.
   b. Probe questions will be considered to follow up general questions and to explore key concepts more deeply.
5. **Script**
   a. Welcome participants
   b. Explain purpose and context
   c. Explain about confidentiality
   d. Explain about recording procedures
   e. Use an icebreaker question to increase comfort and level the playing field.
   f. Ask questions
   g. Thank participants
6. **Moderator**
   a. The principal investigator will act as the moderator.
   b. An assistant moderator will deal with housekeeping issues and help with note taking.
7. **Location**
   a. A comfortable and easily accessible room will be selected.
   b. A setting which does not bias the information gathered will be selected.
   c. Drinks and snacks will be provided to participants.

PHASE 2: CONDUCTING THE FOCUS GROUP

1. **Material to bring:**
   a. Notebook
   b. Computer
   c. Tape recorder
   d. Video recorder
   e. Focus group list of participants
   f. Focus group script
   g. Name tags
   h. Watch or clock
2. **Setting**
   a. Arrive before participants
   b. Set up room, refreshments, etc.
3. **Welcoming**
   a. Nice and friendly welcoming
   b. Introduce the note-taker
4. **Session** (Moderator be mindful of the following)
   a. Set a positive tone.
   b. Make sure everyone is heard; draw out quieter group members.
   c. Probe for deeper opinions.
   d. Monitor the questions and the time closely (be on track).
   e. Avoid participation in the dialogue or correcting participants.
   f. Remain neutral, refraining from nodding, raising eyebrows, agreeing/disagreeing, praising or denigrating any comment made by the participants.
   g. Thank participants

Script

WELCOME

Good morning. Thanks for agreeing to be part of this focus group. We appreciate your willingness to participate.

INTRODUCTIONS

I am Mr. Parra, and I will be the moderator for this focus group interview. With me is [TBD], and he/she will be my assistant moderator.

PURPOSE OF THE FOCUS GROUP

The reason we are having this focus group is to gather information that will help us understand if the use of student-created video podcasts in the Spanish class helps students learn grammar. We need your input and want you to share your honest and open thoughts with us. This focus group will last for 40 to 60 minutes.

GROUND RULES

Before we begin, let me suggest some things to make our discussion more productive.

1. **Because we will be recording for an accurate record, it is important that you speak up and that you only speak one at a time. We do not want to miss any of your comments.**
2. **We will only use first names here. No reports will link what you say to your name. Whatever you say here will remain confidential, and it will not affect your grades. It is extremely important to be as clear and honest in your responses as possible.**
3. **Since each of your perspectives is important, we need to make sure that everyone gets a chance to express their opinions and no one takes too much of the air time. I will take responsibility for time keeping and making sure that we address all of the questions. Try your best to express your opinions without making others feel uncomfortable.**
4. **There are no right or wrong answers. Every opinion is important. Speak up whether you agree or disagree. So please, feel free to respond to each other and to speak directly to others in the group. We want to hear a wide range of opinions.**
5. **If it is okay with you, we will turn on the recorder and start now.**

This student focus group is being conducted on [insert date here] by Sergio Parra, a doctoral candidate at Nova Southeastern University, and Mr./Mrs. [TBD], [position] at Osborne Middle School.

Start Time: _____

Let's begin with introductions.

Please tell us your name, and respond to the following question.

If you had a chance to travel anywhere in the world, where would you go and why?

_____

1. **How would you describe your experience of creating a video podcast to explain the verb to be in Spanish?**

   Detail probes or expanders as necessary:

   a. **What was the easiest thing to accomplish during the process of creating the video podcast?**
   b. **What was the hardest thing to accomplish during the process of creating the video podcast?**
   c. **If you need to use an adjective to describe the whole process, which one would you select?**

2. **If you have to compare the creation of a video podcast with the traditional drills, such as book activities, language lab, workbook pages, and formative assessments to master a foreign language grammar topic, what in your opinion helps you better to understand and learn the grammar topic in question?**

   Detail probes or expanders as necessary:

   a. **How can creating a video podcast help you better learn foreign language grammar?**
   b. **How can the traditional approach help you better learn foreign language grammar?**
   c. **Which of the two strategies is more beneficial to you?**
   d. **You said that creating video podcasts is a better way to learn foreign language grammar. Why is it a better method?**
   e. **You said that the traditional approach is a better way to learn foreign language grammar. Why is it a better method?**

3. **We want to know how creating a video podcast with other students can help or hinder you from mastering a new grammar concept.**

   Detail probes or expanders as necessary:

   a. **How each member of your group contributed with the creation of the video podcast?**
   b. **If you were allowed to select a member for your group, which of the following characteristics would you prefer that member to have?**
      1) **A student who can put things together (a leader).**
      2) **A student who has a very good understanding of the grammar in question.**
      3) **A student with experience in creating video podcasts.**
   c. **Why is that characteristic more important to you?**

4. **What is your opinion about the following statement: "When students teach other students, they reinforce their own understanding of material, and are forced to face elements of a concept that might not be clearly understood".**

   Detail probes or expanders as necessary:

   a. **To what degree is this statement true or false?**
   b. **How can you have a better understanding by just explaining to others what you have learned?**
   c. **What new concept or element about the verb to be in Spanish did you learn from another member of your group while designing and creating the video podcast?**
   d. **How would you feel about explaining to other students something that you have a clear understanding of?**

5. **We want you to consider for a minute this experience of creating video podcasts in other subject areas. How creating video podcasts can benefit your learning experience and promote student achievement in other subject areas?**

   Detail probes or expanders as necessary:

   a. **Can you mention a subject in which you believe that this experience could be more beneficial?**
   b. **How can creating video podcasts help you better in learning that particular subject?**
   c. **Do you have a particular topic in mind?**

6. **Is there anything else you would like to add to this discussion before we end?**

Thank you again for taking the time to participate in this discussion.

End Time: _____

Appendix G: Research Interest Request Email

Research Interest Request Email for Participation in the Research Study Entitled
Use of Student Created Video Podcasts to Promote
Foreign Language Acquisition in Middle School

Dear Parents of [insert name of the student],

I hope this finds you well.

I am currently enrolled in the doctoral program of Computer Technology in Education at Nova Southeastern University in Fort Lauderdale, Florida. As part of my program, I am focusing on how new technologies can be effective to promote foreign language acquisition in middle school. I am writing to you because I would like to invite [*insert name of the student*] to participate in my research study.
The approach for this research does not require [*insert name of the student*] to spend additional time than the required amount to complete the regular assignments to master both the vocabulary and grammar concepts on the unit about the verb "to be" in Spanish.

The study will be investigating and verifying the effectiveness of using student-created video podcasts to promote foreign language grammar acquisition in middle school. The purpose is to design, develop, implement, and evaluate the effectiveness of this technology to achieve the transfer of passive voice grammar into procedural knowledge and promote communicative goals in foreign language grammar instruction.

Please be assured that all information obtained during the study is strictly confidential. The procedure has been thoroughly reviewed and approved by our principal and by the Nova Southeastern University Institutional Review Board, whose sole purpose is to ensure the safety of all research participants.

In the following days, you will receive by mail an envelope that contains a document with all the information about the procedures and expectations from participants, as well as a pre-stamped envelope to send back your signed permission by mail. Upon receipt, I will then contact your child directly and discuss the project with [*insert him/her*]. [*Insert name of the student*] will then have the opportunity to sign a voluntary assent form that fully explains their right to discontinue participation at any time with absolutely no repercussions. I will begin the study as soon as I have assembled all participants with appropriate approvals and voluntary consent and assent forms.

I genuinely appreciate your time and consideration, and look forward to hearing from you.

With warm regards,

Sergio Parra, Ed.S
OMS Spanish Teacher
NSU Doctoral Candidate

NOVA SOUTHEASTERN UNIVERSITY
Institutional Review Board
Approval Date: FEB 2 0 2015
Continuing Review Date: FEB 1 9 2016

Appendix H: Letter of Interest and Consent Form

GWINNETT COUNTY PUBLIC SCHOOLS

J. ALVIN WILBANKS
SUPERINTENDENT

Frank N. Osborne Middle School

John Campbell
Principal

Mary Klamer
Assistant Principal

Lisa Noga
Assistant Principal

Kevin Payne
Assistant Principal

Karen Sanders
Assistant Principal

The Mission of Frank N. Osborne Middle School is to pursue excellence in academic knowledge, skills, and behavior for each student, resulting in measured improvement against local, national, and world class standards.

4404 Braselton Highway
Hoschton, GA 30548

770.904.5400
FAX 678.765.5981

[*Insert Date*]

Dear Parents of [*insert name of the student*],

I hope this finds you well.

I am currently enrolled in the doctoral program of Computer Technology in Education at Nova Southeastern University in Fort Lauderdale, Florida. As part of my program, I am focusing on how new technologies can be effective to promote foreign language acquisition in middle school. I am writing to you because I would like to invite [*insert name of the student*] to participate in my research study.

The approach for this research does not require [*insert name of the student*] to spend additional time than the required to complete the regular assignments to master both the vocabulary and grammar concepts on the unit about the verb "to be" in Spanish.

The study will be investigating and verifying the effectiveness of using student-created video podcasts to promote foreign language grammar acquisition in middle school. The purpose is to design, develop, implement and evaluate the effectiveness of this technology to achieve the transfer of passive voice grammar into procedural knowledge and promote communicative goals in foreign language grammar instruction.

Please be assured that all information obtained during the study is strictly confidential. The procedure has been thoroughly reviewed and approved by our principal, and by the Nova Southeastern University Institutional Review Board, whose sole purpose is to ensure the safety of all research participants.

The attached document contains all the information about the procedures and expectations from participants. I sincerely hope you will consider allowing your child to participate in this study.

Once you give your permission by signing the attached Parent/Guardian Consent Form, please use the pre-stamped envelope to send back the form by mail. Upon receipt, I will then contact your child directly and discuss the project with [*insert him/her*]. [*Insert name of the student*] will then have the opportunity to sign a voluntary assent form that fully explains their right to discontinue participation at any time with absolutely no repercussions. I will begin the study as soon as I have assembled all participants with appropriate approvals and voluntary consent and assent forms.

I genuinely appreciate your time and consideration, and look forward to hearing from you.

With warm regards,

Sergio Parra, Ed.S
OMS Spanish Teacher
NSU Doctoral Candidate

NOVA SOUTHEASTERN UNIVERSITY
Institutional Review Board
Approval Date: FEB 2 0 2015
Continuing Review Date: FEB 1 9 2016

NOVA SOUTHEASTERN UNIVERSITY
Graduate School of Computer and Information Sciences

NOVA Institutional Review Board
Approval Date: FEB 2 0 2015
Continuing Review Date: FEB 1 9 2016

Parent/Guardian Consent Form for Participation in the Research Study Entitled
Use of Student Created Video Podcasts to Promote
Foreign Language Grammar Acquisition in Middle School

Funding Source: None.

IRB protocol #: 11201417Exp

Principal investigator:
Sergio Parra, Ed.S.
3527 Garden Mist Circle
Auburn, GA 30011
(678) 925-6650

Co-investigator:
Gertrude Abramson, Ed.D.
3301 College Avenue
Fort Lauderdale, FL 33314
(954) 262-2070

For questions/concerns about your research rights, contact:
Human Research Oversight Board (Institutional Review Board or IRB)
Nova Southeastern University
(954) 262-5369/Toll Free: 866-499-0790
IRB@nsu.nova.edu

Site Information
Osborne Middle School
4404 Braselton Highway
Hoschton, GA 30548
(770) 904-5400

What is the research about?
You are being asked to let your child participate in a research study. This study will be investigating and verifying the effectiveness of using student-created video podcasts to promote foreign language grammar acquisition in middle school. The purpose is to design, develop, implement and evaluate the effectiveness of this technology to achieve the transfer of passive voice grammar into procedural knowledge and promote communicative goals in foreign language grammar instruction. Your child has been selected to participate on this research based on his/her enrolment in Mr. Parra's Spanish class. Due to the pre-existence of A and B classes, one group will be randomly selected as control group and the other class will be the experimental group. There will be approximately 60 -70 students participating in the study.

Initials: _____ Date: _____

What will my child be doing?
Participants in both groups will first take a district-approved grammar assessment for the selected topic as a pre-test to assess their general knowledge of the foreign language grammar in question. The next step will be to apply the treatment conditions. During the experimental treatment, Mr. Parra will intervene to alter the conditions experienced in both groups. Both groups will receive the same traditional form of grammar instruction at the beginning, but the control group will continue using the traditional approaches to master the selected vocabulary and grammatical concepts while the experimental group will be instructed in the process of designing, and developing a student-created video podcast about the grammar topic selected for this study. The final step is to assess whether the treatment condition influences an outcome. The researcher will administer a posttest to assess the differences between the two groups. The expected duration of this phase is the equivalent of the instructional time devoted to one unit, which is between three to four weeks. The identification of specific quantitative results will call for additional explanations that can be revealed by using a survey instrument to collect the data. The qualitative approach will consist of two focus group interviews to collect shared understanding, experiences, and views from a selected group of participants from the experimental phase. During the focus group interviews, the researcher will use open-ended questions to allow participants to voice their experiences. Each focus group interview will be held during one Spanish connection class, and it is expected to last 60 minutes.

Is there any audio or video recording?
During phase one, the research project will include the recording of audio and computer screen video in the form of a video podcast, similar to those of Khan Academy, about the grammar topic selected for the study. This audio and video podcast recording will be available to be heard and seen by Mr. Parra, the IRB, and the dissertation chair or committee. The audio recording will not be transcribed. During phase two, the focus group interviews, Mr. Parra will record the answers, and transcribe them for data analysis. In both instances, the recordings will be kept securely in a secure server database with no name identification for the purpose of the study. The recording will be kept for 36 months and safely deleted after that time.

What dangers are there for my child?
The procedures or activities in this study may have unknown or unforeseeable risks associated with your child's participation while designing and creating the video podcasts, or during the focus group interview. If you child is selected to participate in the focus group interview, he/she will be allowed to make up any work missed in class by participating in the 60 minute interview. If you have any questions about the research, your research rights, or your child has a research-related injury, please contact Sergio Parra, Ed.S. at 678-925-6650 or Dr. Gertrude Abramson at 954-262-2070. You may also contact the IRB at the numbers indicated above with questions as to your research rights.

Initials: _____ Date: _____

What good things might come about for my child?
Students in the experimental group will participate in a unique learning experience. They will have the opportunity to work with an exciting educational tool. The students in the experimental group will benefit from collaborating with peers while designing, creating, and implementing the video podcast.

Do I have to pay for anything?
There are no costs for your child's participation in this study.

Will I or my child get paid?
There are no payments made for participating in this study. However, students in the control and experimental groups will be invited to an ice cream party to recognize their participation and to celebrate the ending of the study.

How will my child's information be kept private and confidential?
All information obtained in this study is strictly confidential unless disclosure is required by law. All efforts will be made to keep your child's information confidential. Your child will be assigned a random identification number, which will be used on all of your child's information linked via a coding key to their name, and store in a password protected file to maintain confidentiality. Open questions during the focus group interview will not ask for any information that may be linked to your child's name. All collected information will be securely stored for a period of 36 months following the end of the study.

Use of Student/Academic Information:
In order to establish a baseline for comparison and further analysis on the effectiveness of using student-created video podcasts to promote foreign language grammar acquisition in middle school, the proposed research will access the following data of your child from the school records:

1. Your child's learning style with the purpose of establishing if student-created video podcasts benefit a particular learning style.
2. CRCT scores from the 2013-2014 math performance to establish a correlation with scores obtained on Spanish grammar assessments of this current school year.
3. Scores from the Spanish grammar assessments obtained during the 2014-2015 school year to establish your child's trend on grammar performance.

What if I do not want my child to be in the study or my child doesn't want to be in the study?
You have the right to refuse for your child to participate or withdraw your child at any time. Your child may also refuse to participate or withdraw. If your child decides not to participate, neither you nor your child will experience any penalty or loss of instructional services that you have a right to receive. If you choose to withdraw your child, or he/she decides to leave, any information collected about your child **before** the date of withdrawal will be kept in the research records for 36 months following the conclusion of the study but you may request that it not be used.

Initials: _____ Date: _____

Other Considerations:
Children whose parents do not want them to participate in the study or a child who does not want to participate will remain in the control group classroom or the experimental group classroom. For those students in the experimental group, the video podcast project will not be required and the traditional instruction of grammar will provided instead. Their performance on the posttest will not be collected or used for the research purpose. If significant new information relating to the study becomes available which may relate to your willingness to have your child continue to participate, this information will be provided to you by the investigators.

Voluntary Consent by Participant:
By signing below, you indicate that

- this study has been explained to you
- you have read this document or it has been read to you
- your questions about this research study have been answered
- you have been told that you may ask the researchers any study related questions in the future or contact them in the event of a research-related injury
- you have been told that you may ask Institutional Review Board (IRB) personnel questions about your study rights
- you are entitled to a copy of this form after you have read and signed it
- you voluntarily agree for your child to participate in the study entitled Use of Student Created Video Podcasts to Promote Foreign Language Grammar Acquisition in Middle School

Child's Name: _____

Parent's/Guardian Signature: _____ Date: _____

Parent's/Guardian Name: _____ Date: _____

Signature of Person Obtaining Consent: _____

Date: _____

NOVA Southeastern University
Institutional Review Board
Approval Date: FEB 2 0 2015
Continuing Review Date: FEB 1 9 2016

Initials: _____ Date: _____

Appendix I: Assent Form for Participation in Research

NOVA SOUTHEASTERN UNIVERSITY
Graduate School of Computer and Information Sciences

NSU

NOVA SOUTHEASTERN UNIVERSITY
Institutional Review Board
Approval Date: FEB 2 0 2015
Continuing Review Date: FEB 1 9 2016

Assent Form for Participation in the Research Study Entitled
Use of Student Created Video Podcasts to Promote
Foreign Language Grammar Acquisition in Middle School

Funding Source: None.

IRB protocol #: 11201417Exp

Principal investigator:
Sergio Parra, Ed.S.
3527 Garden Mist Circle
Auburn, GA 30011
(678) 925-6650

Co-investigator:
Gertrude Abramson, Ed.D.
3301 College Avenue
Fort Lauderdale, FL 33314
(954) 262-2070

For questions/concerns about your research rights, contact:
Human Research Oversight Board (Institutional Review Board or IRB)
Nova Southeastern University
(954) 262-5369/Toll Free: 866-499-0790
IRB@nsu.nova.edu

Site Information
Osborne Middle School
4404 Braselton Highway
Hoschton, GA 30548
(770) 904-5400

What is a research study?
Research studies help people learn and discover new things. You are kindly being asked to participate in Mr. Parra's research study. Research is voluntary and only those who want to participate will be included in the study. This assent form describes the study. We encourage you to discuss your decision with your parents or your guardian before you make a decision. They also have to provide their permission for you to enter this research study.

Why is this study being done?
As part of his doctoral degree requirements, Mr. Parra needs to conduct a research study about how effective it is for middle school students to design and create videos to help them to learn foreign language grammar.

Initials: _____ Date: _____

What will happen to me?
If you decide to participate, you and other peers in your class will together be randomly assigned as a control group or an experimental group. Both groups will first take a pre-test on a specific grammar topic that later will be explained in class by Mr. Parra. If you are in the control group, you will master the grammar concepts by completing textbook activities, workbook practices, and drills in class, like you normally do. If you are assigned to the experimental group, you will do similar things by designing and creating video podcasts to explain what you have learned in class. Both groups will take a posttest to see how each group is performing in grammar. In order to understand any difference on the posttest, you might be selected to participate in an interview with other students to talk about how your experience was during the study and help Mr. Parra to understand how this technology may or may not help other middle school students taking a foreign language. The group interview will last about 60 minutes, and it will be held during connections.

What are the good things about being in the study?
Mr. Parra is very interested in finding better ways to help students learning Spanish grammar. You will help the investigators discover if creating video podcasts is beneficial for students and how this technology may help thousands of other students around the globe.

Will being in the study hurt me?
We don't think you will be hurt by helping us with this study. Participation in the study will only occur during your regular Spanish classes. If you are selected for the group interview, you will be given extra time to complete any missed work due to the interview. Your comments during the interview will be kept confidential and transcripts will be deleted 36 months after the end of the study.

Will there be any audio or video recording?
The research project will include the recording of audio and computer screen video in the form of a video podcast, similar to those of Khan Academy, about the grammar topic selected for the study. This audio and video podcast recording will be available to be heard and seen by Mr. Parra, the IRB, and the dissertation chair or committee. The audio recording will not be transcribed. During the focus group interviews, Mr. Parra will record the answers, and transcribe them for data analysis. In both instances, the recordings will be kept securely for 36 months in a secure server database with no name identification for the purpose of the study. The recording will be deleted after that time.

How long will I be in the study?
You will be in the study for the length of an instructional unit, which might be around four weeks. Your total time commitment for this study will be restricted to the regular scheduled class time you are in the Spanish class. For the selected group of students participating in the group interview, this will only take one session of 60 minutes during the same class period.

Initials: _____ Date: _____ Page 2 of 3

Do I have other choices?
Yes, you can decide not to be in the study or you can leave at any time during the study. Your class requirements will remain the same, but your scores will not be used for research purposes.

Will people know that I am in the study?
Other students participating and not participating in the study will know that you are in the study. When we present the study results or write up the results, we will not use your name. We will do everything we can to keep what you tell us and what you are doing confidential. You will be assigned a random identification number that will be used on all of your information linked via a coding key to your name and stored in a password-protected file so your identity can remain confidential.

Whom should I ask if I have questions?
If you have any questions, you can ask Mr. Parra. Remember, you should also discuss your participation with your parents or your guardian.

Is it OK if I say "No, I don't want to be in the study"?
You do not have to be part of this study if you don't want to. No one will be mad or upset. If you change your mind during the study, you can decide to stop participating.

Other information
If we learn important new information about this study, we will tell you and let you decide if you want to stop being part of the study.

Do you understand and do you want to be in the study?
I understand. All my questions were answered.

- ❑ I want to be in the study.
- ❑ I don't want to be in the study.

_____
Your name (Print)

_____ _____
Your signature Date

_____ _____
Signature of person explaining the study Date

Initials: _____ Date: _____ Page 3 of 3

Appendix J: Video Podcast Project and Rubric

Gwinnett County Public Schools
Foreign Language Summative Assessment
Spanish I - Video Podcast

TOPIC: Spanish present tense conjugations of the verbs *Ser* and *Estar* (to be)

Project: You will write, direct, produce, record, edit and publish a 2 to 3 minute video podcast that explains the uses of the Spanish present tense conjugations of the verbs *ser* and *estar.*
Audience: Students' peers. With your consent, I will also use these video podcasts as a resource to help other students understand this important grammatical concept.

Procedure

Steps	Description	Deadline
1	Video Podcast Project will be presented to students. Groups of four students will be created in class.	Day 1
2	Draft a sketch that includes the following five sections: Introduction, explanation, examples, summary, and evaluation. (For future **segmentation**)	[*enter date*]
3	Discuss and gather all the materials you need to explain the uses of *ser* and *estar* (information, graphics, and background music). Keep in mind the time you have to present all the information in your video. Length of time suggested at this point: 3-5 minutes.	
4	Create short PowerPoints to produce a segmented video: a. Introduce the verb *to be* in Spanish (irregular verb, infinitive forms in Spanish) b. Explain the uses of each verb in Spanish c. Provide examples of both verbs in complete sentences d. Summarize the concept e. Create a quiz with a minimum of six questions about the concept explained.	[*enter date*]
5	Edit your presentation by cutting irrelevant material (**Weeding**) and highlighting essential material (**Signaling**: use of titles, subtitles, bold text, and color text). Length of time at this point: 2-3 minutes	[*enter date*]
6	Rehearse your presentation (**Personalization**: conversational style)	[*enter date*]
7	Record your presentation using Camtasia Studio in a conversational style	[*enter date*]
8	Edit your presentation with Camtasia Studio: Add a sound track to start your presentation and to conclude your presentation Create closing credits in final cut	[*enter date*]
9	Render the final copy	[*enter date*]
10	Turn the final copy to your teacher	[*enter date*]

Evaluation
Your grade will be based on:

- Content accuracy / organization
- Creativity and design (be original)
- Technical production
- CTML principles
- Delivery
- Team work

- **Rubric**

Category	4 Advanced	3 Proficient	2 Basic	1 Limited
Content accuracy and Organization	Demonstrates a full understanding of the topic. Information in the vodcast is interesting and in-depth.	Demonstrates a good understanding of the topic. Adequate information of the chores,	Demonstrates a good understanding of the topic. Limited coverage of information about chores at home.	Does not show understanding of the topic.
Creativity and Design	Entire video podcast shows exceptional creativity and originality. Project is unique, does not look like the others. Shows creativity that works, it is not just weird but exciting and fresh.	Video podcast shows some creativity and originality. Project is nice and works, but is not unique. It has similar components as other presentations.	Video podcast is generally well organized, but shows little creativity or originality.	Video podcast shows little thought and lacks creativity or originality. Project appears forced, hard to follow.
Technical Production *Transitions, volume, length*	Transitions are smooth and spaced correctly without noisy, dead space. Volume of voice, music, and effects enhance the presentation. Podcast length keeps the audience interested and engaged.	Transitions are smooth with a minimal amount of ambient noise. Volume is acceptable. Podcast length keeps audience listening.	Transitions are uneven with inconsistent spacing; ambient noise is present. Volume is occasionally inconsistent. Podcast length is somewhat long or somewhat short to keep audience engaged.	Transitions are abrupt and background noise needs to be filtered. Volume changes are highly distracting. Podcast is either too long or too short to keep the audience engaged.
CTML Principles *Segmentation* *Signaling* *Weeding*	Video was clearly divided into meaningful segments. All important material emphasized All irrelevant material was removed	Most of the video was divided into meaningful segments. Most of the important material was emphasized. Most of the irrelevant material was removed	Some sections were grouped without clear distinction. Some important material was emphasized. Some irrelevant material was removed	There is no clear distinction of the sections. No important material was emphasized. It contains irrelevant material that confuses the audience
Delivery	Well-rehearsed, smooth delivery in a conversational style. Highly effective enunciation, expression, and rhythm keep the audience listening.	Rehearsed, smooth delivery. Enunciation, expression, pacing are effective.	Appears unrehearsed with uneven delivery. Enunciation, expression, rhythm are sometimes distracting.	Delivery is hesitant or choppy, and sounds like the presenter is reading. Enunciation of spoken word is not clearly understandable or expression and rhythm are distracting throughout the podcast.
Team Work	All team members contributed equally to the finished product and assisted in editing process by offering critique and sharing in skill development. Performed all duties of assigned team role and contributed knowledge, opinions, and skills to share with the team. Always did the assigned work.	Assisted group/partner. Performed nearly all duties and contributed knowledge, opinions, and skills to share with the team. Completed the assigned work.	Finished own part but did not assist group/partner. Performed some of the duties and barely contributed knowledge, opinions, and skills to share with the team. Did not complete the assigned work.	Contributed little to the project. Did not perform any duties of assigned team role and did not contribute knowledge, opinions or skills to share with the team. Relied on others to do the work.

Appendix K: Consent Form for Participation in a Focus Group Interview

NOVA SOUTHEASTERN UNIVERSITY
Graduate School of Computer and Information Sciences

NSU

NOVA SOUTHEASTERN UNIVERSITY
Institutional Review Board
Approval Date: FEB 2 0 2015
Continuing Review Date: FEB 1 9 2016

Parent/Guardian Consent Form for Participation
in a Focus Group Interview Research Study Entitled
Use of Student Created Video Podcasts to Promote
Foreign Language Grammar Acquisition in Middle School

Funding Source: None.

IRB protocol #: 11201471Exp

Principal investigator:
Sergio Parra, Ed.S.
3527 Garden Mist Circle
Auburn, GA 30011
(678) 925-6650

Co-investigator:
Gertrude Abramson, Ed.D.
3301 College Avenue
Fort Lauderdale, FL 33314
(954) 262-2070

For questions/concerns about your research rights, contact:
Human Research Oversight Board (Institutional Review Board or IRB)
Nova Southeastern University
(954) 262-5369/Toll Free: 866-499-0790
IRB@nsu.nova.edu

Site Information
Osborne Middle School
4404 Braselton Highway
Hoschton, GA 30548
(770) 904-5400

Dear Parent of [*Insert name of the student*],

Your child has been selected to participate in a focus group interview research with 6 to 9 other students who experienced the creation of video podcasts for the Spanish class at Osborne Middle School based on your previous consent for participation in the research entitled "Use of Student Created Video Podcasts to Promote Foreign Language Grammar Acquisition in Middle School".

Initials: _____ Date: _____

This consent form serves for providing additional details about this focus group interview phase and confirming your child's participation. Your child and the other selected students will be asked to talk about their experiences of using student-created video podcasts to promote foreign language grammar acquisition in middle school. The focus group interview will be held during connections, and it will not take longer than one regular Spanish period class. Your child will be excused from classwork, and [he/she] will not be responsible for any missing work.

During the focus group interviews, the researcher will use open-ended questions to allow participants to voice their experiences. The information your child gives us is confidential. To protect your child's identity, they will not be identified personally in any way. A final report will be compiled based on the information gathered during the focus group; however, no personally identifying information will be disclosed.

The focus group interview will take place as follows:

DATE: [insert date]
TIME: 10:40 – 11:40 am
PLACE: Room 1.801

Other Considerations:
We do not anticipate any risks from participating in this study (that is, not beyond those encountered in the course of everyday life). You should remember that during each of the discussions, your child does not have to answer any question(s) that [he/she] does not wish to answer. Students will be free to leave the group at any time to return to the regular connection class. Further, you or your child may ask questions about our focus group procedures at any time and these questions will be answered.

Voluntary Consent by Participant:
By signing below, you indicate that

- this study has been explained to you
- you have read this document or it has been read to you
- your questions about this research study have been answered
- you have been told that you may ask the researchers any study related questions in the future or contact them in the event of a research-related injury
- you have been told that you may ask Institutional Review Board (IRB) personnel questions about your study rights
- you are entitled to a copy of this form after you have read and signed it
- you voluntarily agree for your child to participate in a Focus Group Interview Research Study Entitled Use of Student Created Video Podcasts to Promote Foreign Language Grammar Acquisition in Middle School

Initials: _____ Date: _____

Child's Name: _____

Parent's/Guardian Signature: _____ Date: ____

Parent's/Guardian Name: _____ Date: _____

Signature of Person Obtaining Consent: _____

Date: _____

Initials: _____ Date: _____

Appendix L: Assent Form for Participation in a Focus Group Interview

NOVA SOUTHEASTERN UNIVERSITY
Graduate School of Computer and Information Sciences

NOVA Institutional Review Board
Approval Date: FEB 2 0 2015
Continuing Review Date: FEB 1 9 2016

Assent Form for Participation in a Focus Group Interview Research Study Entitled
Use of Student Created Video Podcasts to Promote
Foreign Language Grammar Acquisition in Middle School

Funding Source: None.

IRB protocol #: 11201471Exp

Principal investigator:
Sergio Parra, Ed.S.
3527 Garden Mist Circle
Auburn, GA 30011
(678) 925-6650

Co-investigator:
Gertrude Abramson, Ed.D.
3301 College Avenue
Fort Lauderdale, FL 33314
(954) 262-2070

For questions/concerns about your research rights, contact:
Human Research Oversight Board (Institutional Review Board or IRB)
Nova Southeastern University
(954) 262-5369/Toll Free: 866-499-0790
IRB@nsu.nova.edu

Site Information
Osborne Middle School
4404 Braselton Highway
Hoschton, GA 30548
(770) 904-5400

Dear [*Insert name of the student*],

You have been selected to participate in an interview with 6 to 9 other classmates who also worked on the creation of video podcasts for the Spanish class. You and other students will be asked to talk about your experiences of creating these videos. The interview will be held during connections, and it will not take longer than one regular Spanish period class. You will be excused from classwork, and you will not be responsible for any missing work.

Initials: _____ Date: _____

During the interview, Señor Parra will use open-ended questions to allow you to voice your experiences. The information you give to Señor Parra is confidential. To protect your identity, you will not be identified personally in any way. The interview will take place as follows:

DATE: [insert date]
TIME: 10:40 – 11:40 am
PLACE: Room 1.801

Other Considerations:
We do not think you will be hurt by helping us with this study. Participation in the study will only occur during connections. You should remember that during each of the discussions, you do not have to answer any question(s) that you do not wish to answer. You will be free to leave the group at any time to return to your regular connections class.

Voluntary Consent by Participant:
By signing below, you indicate that

- this study has been explained to you
- you have read this document or it has been read to you
- your questions about this research study have been answered
- you are entitled to a copy of this form after you have read and signed it
- you voluntarily agree for your child to participate in a Focus Group Interview Research Study Entitled Use of Student Created Video Podcasts to Promote Foreign Language Grammar Acquisition in Middle School

Do you understand and do you want to be in the study?
I understand. All my questions were answered.

- ☐ I want to be in the study.
- ☐ I don't want to be in the study.

_____
Your name (Print)

_____ _____
Your signature Date

_____ _____
Signature of person explaining the study Date

Initials: _____ Date: _____

Appendix M: Local IRB Letter of Approval

September 2014

To Whom It Concerns:

According to policy and procedure of the Gwinnett County Public Schools (GCPS), employees' requests to conduct research studies at their own local schools are approved by the school's principal. A copy of the current GCPS procedure is enclosed, along with a copy of the applicant's approved Local School Research Request form.

I trust that these documents will be received as valid proof that the employee/researcher's study has the approval of Gwinnett County Public Schools.

Sincerely,

Colin A. Martin, Ph.D.
Executive Director Research and Evaluation
colin_martin@gwinnett.k12.ga.us

CAM/pb

437 Old Peachtree Road, NW
Suwanee, GA 30024-2978
678-301-6000
www.gwinnett.k12.ga.us

GWINNETT COUNTY PUBLIC SCHOOLS

Gwinnett County Board of Education

Level: Procedure I-Instructional Programs	Accompanying Policy: ICC Notes Link	Descriptor Code: P.ICC	Rescinds February 13, 2004
Descriptor Term: **Educational Research**		Effective Date:	

All educational research in the Gwinnett County Public Schools is coordinated by the Executive Director of Research and Evaluation. The review cycle for research applications is September November, January, March, May, and July of each year. The Gwinnett Institutional Review Board (IRB) reviews research applications and makes recommendations to the Area Superintendents, who determine the acceptability of research applications. In most cases, schools and teachers may elect not to participate in a research study, even if it has been approved at the district level.

The local school principal reviews and approves all research requests conducted within the individual school by employees of that school. This applies to research conducted within and by local school personnel. All other research must be submitted to the Executive Director of Research and Evaluation.

Requests for conducting research within Gwinnett County Public Schools shall conform to the completion of the IRB Application Form, which is available on the GCPS website. All requests must be submitted in writing by the published due date prior to the Institutional Review Board meeting. Every effort shall be made to respond to all requests within 4 to 5 weeks of the due date.

GWINNETT COUNTY PUBLIC SCHOOLS

Gwinnett County Board of Education

Board Policy ICC - Educational Research

The Gwinnett County Board of Education recognizes that systematic study of the educational process and related variables can contribute significantly to the development and implementation of high-quality instructional programs. The Board therefore encourages the conduct of well-designed educational research projects within the district.

While recognizing the value of educational research, the Board also has a responsibility to protect students, parents, and staff from harassment; invasion of privacy; physical, psychological, social, and educational injury; and substantial distraction from teaching and learning. Consequently, the Board requires that all research proposals be carefully screened by the Executive Director of Research and Evaluation and the Gwinnett Institutional Review Board to ensure that the proposed research has potential value for the district and is consistent with district philosophies, legal obligations, and standards of good scholarship.

The Executive Director of Research and Evaluation must provide written approval before a research project may be conducted in the district. The Director and the appropriate division will be responsible for monitoring any approved research.

GWINNETT COUNTY PUBLIC SCHOOLS

LOCAL SCHOOL RESEARCH REQUEST FORM

Name of School: Osborne Middle School

Name of Researcher: Sergio Parra

Position or Grade: Spanish Teacher

A. Research Project

a. Title: Use of student created video podcasts to promote foreign language grammar acquisition in Middle School

b. Statement of Problem and research question: The problem identified is the need for experimental research concerning the effectiveness of using student created video podcasts as a multimedia instructional strategy and a multimedia learning tool to enhance foreign language grammar acquisition by middle school students when using selected principles of Cognitive Theory of Multimedia Learning.

c. Subjects or population for the study: The population under consideration for this study is comprised of 7th grade students taking Spanish I at Osborne Middle School.

d. Reason for doing this research:

__V__ Graduate Study at Nova Southeastern University/College

_____ Publication/Presentation

_____ Other (please specify) _____

e. Dates research will be conducted: August 5, 2014 to May 20, 2015

B. All research and researchers must a) Protect the rights and welfare of all human subjects, b) Inform students and/or parents that they have the right not to participate in the study, c) Adhere to board policies and applicable laws which govern the privacy and confidentiality of students records.

C. This request applies to research conducted within and by local school personnel. All other research requests must be submitted by completing a GCPS Research Application and submitting it electronically according to instructions. For complete details and instructions, please visit our Web Page at the following link: http://tinyurl.com/ce7pmpm or you can simply go to gwinnett.k12.ga.us. When you open our webpage, click on "I want to" section.....Apply for Research Approval." This will take you to our webpage.

D. Principals ONLY need to approve Local School Research Requests. The copy sent to the Research & Evaluation Office is for filing purposes only. No further approval is necessary.

E. After approval by the principal, please forward a copy of this completed form to:

Via GCPS Courier:	Via US Mail:	Via Fax:
Colin Martin GCPS - Research & Evaluation ISC	Dr. Colin Martin, Executive Director Research & Evaluation Department Gwinnett County Public Schools 437 Old Peachtree Road, NW Suwanee, GA 30024	Colin Martin 678-301-7088

Principal's Signature

9-2-14
Date of Approval

Appendix N: NSU IRB Letter of Approval

NOVA SOUTHEASTERN UNIVERSITY
Institutional Review Board

MEMORANDUM

To: Sergio Parra, M.Ed.
Graduate School of Computer and Information Sciences

From: Matthew Seamon, Pharm.D., JD
Chair, Institutional Review Board

Date: February 23, 2015

Re: *Use of Student Created Video Podcasts to Promote Foreign Language Grammar Acquisition in Middle School* – NSU IRB No. 11201417Exp.

I have reviewed the revisions to the above-referenced research protocol by an expedited procedure. On behalf of the Institutional Review Board of Nova Southeastern University, *Use of Student Created Video Podcasts to Promote Foreign Language Grammar Acquisition in Middle School* is approved in keeping with expedited review category #7. Your study is approved on **February 20, 2015** and is approved until **February 19, 2016**. You are required to submit for continuing review by **January 19, 2016.** As principal investigator, you must adhere to the following requirements:

1) CONSENT: You must use the stamped (dated consent forms) attached when consenting subjects. The consent forms must indicate the approval and its date. The forms must be administered in such a manner that they are clearly understood by the subjects. The subjects must be given a copy of the signed consent document, and a copy must be placed with the subjects' confidential chart/file.

2) ADVERSE EVENTS/UNANTICIPATED PROBLEMS: The principal investigator is required to notify the IRB chair of any adverse reactions that may develop as a result of this study. Approval may be withdrawn if the problem is serious.

3) AMENDMENTS: Any changes in the study (e.g., procedures, consent forms, investigators, etc.) must be approved by the IRB prior to implementation.

4) CONTINUING REVIEWS: A continuing review (progress report) must be submitted by the continuing review date noted above. Please see the IRB web site for continuing review information.

5) FINAL REPORT: You are required to notify the IRB Office within 30 days of the conclusion of the research that the study has ended via the IRB Closing Report form.

The NSU IRB is in compliance with the requirements for the protection of human subjects prescribed in Part 46 of Title 45 of the Code of Federal Regulations (45 CFR 46) revised June 18, 1991.

Cc: Dr. Gertrude Abramson
Dr. Ling Wang
Mr. William Smith

3301 College Avenue • Fort Lauderdale, Florida 33314-7796
(954) 262-5369 • Fax: (954) 262-3977 • Email: irb@nova.edu • Web site: www.nova.edu/irb

References

Abdous, M., Facer, B.R., & Yen, C. (2012). Academic effectiveness of podcasting: A comparative study of integrated versus supplemental use of podcasting in second language classes. *Computers & Education, 58*(1), 43-52.

Abramson, G. (2012). Writing an applied learning technology proposal. *Journal of Applied Learning Technology, 2*(1), 6-13.

Alpay, E., & Gulati, S. (2010). Student-led podcasting for engineering education. *European Journal of Engineering Education, 35*(4), 415-427.

American Educational Research Association. (1999). *Standards for educational and psychological testing*. Washington, DC: American Educational Research Association.

Anastasi, A., & Urbina, S. (1977). *Psychological testing, 7th edition*. Upper Saddle River, NJ: Prentice-Hall.

Ardaç, D., & Unal, S. (2008). Does the amount of on-screen text influence student learning from a multimedia-based instructional unit? *Instructional Science, 36*(1), 75-88.

Barbour, R. (2007). *Doing focus groups.* Thousand Oaks, CA: SAGE Publications, Inc.

Baturay, M. H., Daloglu, A., & Yildirim, S. (2010). Language practice with multimedia supported web-based grammar revision material. *ReCALL, 22*(3), 313-331.

Bell, B.A. (2010). Pretest-posttest design. In N.J. Salkind (Ed.), *Encyclopedia of research design* (pp. 1087-1092). Thousand Oaks, CA: SAGE Publications, Inc.

Blok, R., & Godsk, M. (2009). Podcasts in higher education: What students want, what they really need, and how this might be supported. In T. Bastiaens et al. (Eds.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2009* (pp. 117-128). Chesapeake, VA: AACE.

Bolliger, D. U., Supanakorn, S., & Boggs, C. (2010). Impact of podcasting on student motivation in the online learning environment. *Computers & Education, 55*(2), 714-722.

Bonner, A., & Tolhurst, G. (2002). Insider-outsider perspectives of participant observation. *Nurse Researcher, 9*(4), 7-19.

Borg, W. (1984). Dealing with threats to internal validity that randomization does not rule out. *Educational Researcher, 13*(10), 11-14.

Boster, F. J., Meyer, G. S., Roberto, A. I., Lindsey, L., Smith, R., Inge, C., & Strom, R. E. (2007). The impact of video streaming on mathematics performance. *Communication Education, 56*(2), 134-144.

Breen, L. J. (2007). The researcher 'in the middle': Negotiating the insider/outsider dichotomy. *The Australian Community Psychologist, 19*(1), 163-174.

Brenner, J. & Rainie, L. (2012). Pew Internet: Broadband. *Pew Internet & American Life Project.* Retrieved from http://pewinternet.org/Commentary/2012/May/Pew-Internet-Broadband.aspx

Brown, C. (2007). Learning through multimedia construction: A complex strategy. *Journal of Educational Multimedia and Hypermedia, 16*(2), 93-124.

Bruner, J. (1960). *The Process of Education*. Cambridge, MA: Harvard University Pres

Brünken, R., Steinbacher, S., Plass, J. L., & Leutner, D. (2002). Assessment of cognitive load in multimedia learning using dual-task methodology. *Experimental Psychology, 49*(2), 109-119.

Challoo, L. & Livingston, G. (2008). Podcasting in K-12. In C. Bonk et al. (Eds.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2008* (pp. 2120-2128). Chesapeake, VA:AACE.

Chen, C. M., & Sun, Y.C. (2012). Assessing the effects of different multimedia materials on emotions and learning performance for visual and verbal style learners. *Computers & Education, 59*(4), 1273-1285.

Chen, C., & Wu, C. (2015). Effects of different video lecture types on sustained attention, emotion, cognitive load, and learning performance. *Computers & Education, 80*(1), 108-121.

Chester, A., Buntine, A., Hammond, K., & Atkinson, L. (2011). Podcasting in education: Student attitudes, behavior and self-efficacy. *Educational Technology & Society, 14*(2), 236-247.

Cohen, L., Manion, L., & Morrison, K. (2011). *Research methods in education, 7th edition.* New York, NY: Routledge.

Cook, T.D., & Campbell, D.T. (1979). *Quasi-experimentation design and analysis issues for field settings*. Chicago, IL: Rand McNally.

Copley, J. (2007). Audio and video podcasts of lectures for campus-based students: Production and evaluation of student use. *Innovations in Education and Teaching International, 44*(4), 387-399.

Coutinho, C., & Mota P. (2011). Web 2.0 technologies in music education in Portugal: Using podcasts for learning. *Computers in the Schools, 28*(1), 56-74.

Creswell, J.W. (2008). *Educational research, 3rd edition*. Upper Saddle River, NJ: Pearson Education, Inc.

Creswell, J.W. (2014). *Research design, 4th edition.* Thousand Oaks, CA: SAGE Publications, Inc.

Creswell, J.W. (2015). *A concise introduction to mixed methods research*. Thousand Oaks, CA: SAGE Publishing, Inc.

Creswell, J.W., & Miller, D.L. (2000). Determining validity in qualitative inquiry. *Theory into Practice, 39*(3), 124-131.

Creswell, J.W., Plano Clark, V.L., Gutmann, M., & Hanson, W. (2003). Advanced mixed methods research designs. In A. Tashakkori & C. Teddlie (Eds.), *Handbook on mixed methods in the behavioral and social sciences* (209-240). Thousand Oaks, CA: SAGE Publications, Inc.

Creswell, J.W., & Plano Clark, V.L. (2011). *Designing and conducting mixed methods research, 2nd edition.* Thousand Oaks, CA: SAGE Publications, Inc.

Criswell, C. (2008). Music Technology: The value of podcasting. *Teaching Music, 16*(2), 26-27.

Crow, R. (2009). Student-generated podcasts as a strategy for learning. In G. Gibson et al. (Eds.), *Proceedings of Society for Information Technology and Teacher Education 2009* (pp. 629-632). Chesapeake, VA: AACE.

Davis, A., & McGrail, E. (2009). "Proof-Revising" with podcasting: Keeping readers in mind as students listen to and rethink their writing. *The Reading Teacher, 62*(6), 522-529.

De Boer, J., Kommers, P. A. M., & de Brock, B. (2011). Using learning styles and viewing styles in streaming video. *Computers & Education, 56*(3), 727-735.

De Jong, T. (2010). Cognitive load theory, educational research, and instructional design. Some food for thought. *Instructional Science, 38*(2), 105-134.

DeLeeuw, K. E., & Mayer, R. E. (2008). A comparison of three measures of cognitive load: Evidence for separable measures of intrinsic, extraneous, and germane load. *Journal of Educational Psychology, 100*(1), 223-234.

Duffy, T.M., & Jonassen, D.H. (1991). Constructivism: New implications for instructional technology? *Educational Technology, 31*(5), 7-12.

Fernandez, V., Simo, P., & Sallan, J. M. (2009). Podcasting: A new technological tool to facilitate good practice in higher education. *Computers & Education, 53*(2), 385-392.

Gay, L. R., Mills, G. E., & Airasian, P. W. (2011). *Educational research competencies for analysis and applications, 10th Edition*. Upper Saddle River, NJ: Pearson.

Georgia Department of Education (n.d.). *College and Career Ready Performance Index*. Retrieved April 14, 2014 from http://www.gadoe.org/CCRPI/Pages/default.aspx.

Georgia Department of Education. (n.d.). *Schools of Excellence*. Retrieved April 14, 2014 from https://www.gadoe.org/External-Affairs-and-Policy/Excellence-Recognition/Pages/Schools-of-Excellence.aspx.

Golafshani, N. (2003). Understanding reliability and validity in qualitative research. *The Qualitative Report, 8*(4), 597-607.

Guba. E.G. (1981). Criteria for assessing trustworthiness of naturalistic inquiries. *Educational Communication and Technology Journal, 29*(1), 75-91.

Guba, E.G., & Lincoln, Y.S. (1994). Competing paradigms in qualitative research. In N.K. Denzin & Y.S. Lincoln (Eds.), *Handbook of Qualitative Research* (pp. 105-117). Thousand Oaks, CA: Sage.

Hall, B., & Howard, K. (2008). A synergistic approach: Conducting mixed methods research with typological and systematic design considerations. *Journal of Mixed Methods Research, 2*(3), 248-269.

Harris, J., & Roberts, K. (2003). Challenging barriers to participation in qualitative research. *International Journal of Qualitative Methods, 2*(2), 14-22.

Hasan, M., & Hoon, T.B. (2013). Podcast applications in language learning: A review of recent studies. *English Language Teaching, 6*(2), 128-135.

Heilsen, S. B. (2010). What is the academic efficacy of podcasting? *Computers & Education, 55*(3), 1063-1068.

Hew, K. F. (2009). Use of audio podcast in K-12 and higher education: A review of research topics and methodologies. *Education Technology Research and Development, 57*(3), 333-357.

Hill, J. L., & Nelson, A. (2011). New technology, new pedagogy? Employing video podcasts in learning and teaching about exotic ecosystems. *Environmental Education Research, 17*(3), 393-408.

Ho, C.B., & Chou, Y.T. (2009). The critical factors for applying podcast in mobile language learning. In *Proceedings of 2009 International Conference on Information Management and Engineering* (pp. 411-415), Kuala Lumpur, Malaysia. doi: 10.1109/ICIME.2009.28

Hsu, C., & Sandford, B.A. (2010). The Delphi technique. In N. Salkind (Ed.), *Encyclopedia of Research Design* (pp. 344-347). Thousand Oaks, CA: SAGE Publications, Inc.

Hur, J. W., & Suh, S. (2012). Making learning active with interactive whiteboards, podcasts, and digital storytelling in ELL classrooms. *Computers in the Schools, 29*(4), 320-338.

Ibrahim, M. (2012). Implications of designing instructional video using Cognitive Theory of Multimedia Learning. *Critical Questions in Education, 3(2), 83-104.*

Jayanthi, M., & Nelson, J.S. (2002). *Savvy decision making: An administrator's guide to using focus groups in schools.* Thousand Oaks, CA: Corwin Press, Inc.

Johnson, C. G. (2008). Student-generated podcasts for learning and assessment. In *Proceedings of the 8th International Conference on Computing Education Research* (pp. 84-87). ACM, New York, NY.

Kara, A. (2009). The Effect of a 'Learning Theories' Unit on Students' Attitudes towards Learning. *Australian Journal of Teacher Education, 34*(3), 100-113.

Kay, R. H. (2012). Exploring the use of video podcasts in education: A comprehensive review of the literature. *Computers in Human Behavior, 28*(3), 820-831.

Kay, R., & Edwards, J. (2012). Examining the use of worked example video podcasts in middle school mathematics classrooms: A formative analysis. *Canadian Journal of Learning and Technology, 38*(3), 1-20.

Kemp, J., Mellor, A., Kotter, R., & Oosthoek, J. (2012). Student-produced podcasts as an assessment tool: An example from geomorphology. *Journal of Geography in Higher Education, 36*(1), 117-130.

Kocakaya, S. (2011). An educational dilemma: Are educational experiments working? *Educational Research and Reviews, 6*(1), 110-123.

Koehler, N. A., Thompson, A. D., & Phye, G. D. (2011). A design study of a multimedia instructional grammar program with embedded tracking. *Instructional Science, 39*(6), 939-974.

Kruger, R.A. (1998). *Focus groups: A practical guide for applied research, 2nd ed.* Thousand Oaks, CA: Sage Publications, Inc.

Larsen-Freeman, D. (2009). Teaching and testing grammar. In M. H. Long, & C. J. Doughty (Eds.), *The Handbook of Language Teaching* (pp. 518-542). Malden, MA: Wiley Blackwell.

Lee, M.J.W., McLoughlin, C., & Chan, A. (2008). Talk the talk: Learner-generated podcasts as catalyst for knowledge creation. *British Journal of Educational Technology, 39*(3), 501-521.

Levi, M. (2009). Technologies in use for second language learning. *The Modern Language Journal, 93*(S1), 769-782.

Levin, H.M., & Calcagno, J.C. (2008). Remediation in the community college. *Community College Review, 35*(3), 181-207.

Liamkina, O., & Ryshina-Pankova, M. (2012). Grammar dilemma: Teaching grammar as a resource for making sense. *The Modern Language Journal, 96*(2), 270-289.

Light, G., Calkins, S., Luna, Melissa, & Drane, D. (2009). Assessing the impact of a year-long faculty development program on faculty approaches to teaching. *International Journal of Teaching and Learning in Higher Education, 20*(2), 168-181.

Lin, C. F., Hung, Y. H., & Chang, R. I. (2013). Analyzing the effects of different multimedia materials on learning system. *International Journal of Engineering Trends and Technology, 4*(5), 2145-2150.

Litchfield, A., Dyson, L.E., Wright, M., Pradhan, S. & Courtille, B. (2010). Student-produced vodcasts as active metacognitive learning. In *Proceedings of the Tenth IEEE International Conference on Advanced Learning Technologies* (pp. 560-564), Sousse, Tunisia.

Liu, M., Horton, L., Olmanson, J., & Toprac, P. (2011). A study of learning and motivation in a new media enriched environment for middle school science. *Educational Technology Research and Development, 59*(2), 249-265.

Lomicka, L., & Lord, G. (2011). Podcasting – Past, present and future: Applications of academic podcasting in and out of the language classroom. In B. Facer & M. Abdous (Eds.), *Academic Podcasting and Mobile Assisted Language Learning: Applications and outcomes* (pp. 1-20). Hershey, PA: IGI Global.

Long, M. H., & Dougthy, C. J. (2009). *The handbook of language teaching*. Malden, MA: Wiley Blackwell.

Mart, C. T. (2013). Teaching grammar in context: Why and How? *Theory and Practice in Language Studies, 3*(1), 124-129.

Martella, R.C., Nelson, J.R., Morgan, R.L., & Marchand-Martella, N.E. (2013). *Understanding and interpreting educational research*. New York, NY: Guilford Publications, Inc.

Mayer, R. E. (2005). Cognitive theory of multimedia learning. In R.E. Mayer (Ed.), *The Cambridge handbook of multimedia learning* (pp. 31-48). New York, NY: Cambridge University Press.

Mayer, R. E. (2009). *Multimedia learning* (2nd ed). New York: Cambridge University Press.

Mayer, R. E. (2010). Applying the science of learning to medical education. *Medical Education, 44*(1), 543-549.

Mayer, R. E., & Moreno, R. (2003). Nine ways to reduce cognitive load in multimedia learning. *Educational Psychologist, 38*(1), 43-52.

McCarney, R., Warner, J., Lliffe, S., Van Haselen, R., Griffin, M., & Fisher, P. (2007). The hawthorne effect: A randomized, controlled trial. *BMC Medical Research Methodology, 7*(30), 1-8.

McCombs, S., & Liu, Y. (2007). The efficacy of podcasting technology in instructional delivery. *International Journal of Technology in Teaching and Learning, 3*(2), 123-134.

McGarr, O. (2009). A review of podcasting in higher education: Its influence on the traditional lecture. *Australasian Journal of Educational Technology, 25*(3), 309-321.

Morgan, D. (1998). Practical strategies for combining qualitative and quantitative methods: Applications to health research. *Qualitative Health Research, 8*(1), 362-376.

Ng'ambi, D., & Lombe, A. (2012). Using podcasting to facilitate student learning: A constructivist perspective. *Educational Technology & Society, 15*(4), 181–192.

O'Bannon, B. W., Lubke, J. K., Beard, J. L., & Britt, V. G. (2011). Using podcasts to replace lecture: Effects on student achievement. *Computers & Education, 57*(3), 1885-1892.

Ocepek, U., Bosnic, Z., Serbec, I., & Rugelj, J. (2013). Exploring the relation between learning style models and preferred multimedia types. *Computers & Education, 69*, 343-355.

Oreskovic, A. (2012, January 23). Exclusive: YouTube hits 4 billion daily video views. *Reuters, Edition U.S.* Retrieved from http://www.reuters.com/article/2012/01/23/us-google-youtube-idUSTRE80M0TS20120123

Oswald, D., Sherratt, F., & Smith, S. (2014). Handling the hawthorne effect: The challenges surrounding a participant observer. *Review of Social Studies, 1*(1), 53-73.

Ozdener, N., & Gungor, Y. (2010). Effects of video podcast technology on peer learning and project quality. *Procedia Social and Behavioral Sciences, 2*(2), 2217-221.

Paas, F., Tuovinen, J. E., Tabbers, H., & Van Gerven, P.W.M. (2003). Cognitive load measurement as a means to advance cognitive load theory. *Educational Psychologist, 38*(1), 63-71.

Paivio, A. (1986). *Mental representations: A dual coding approach.* Oxford, Engalnd: Oxford University Press.

Parson, V., Reddy, P., Wood, J., & Senior, C. (2009). Educating an iPod generation: undergraduate attitudes, experiences and understanding of vodcasts and podcast use. *Learning Media and Technology, 34*(3), 215-228.

Patton, M.Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage Publications, Inc.

Pekrun, R., Goetz, T., Frenzel, A. C., Barchfeld, P., & Perry, R. P. (2011). Measuring emotions in students' learning and performance: the achievement emotions questionnaire (AEQ). *Contemporary Educational Psychology, 36*(1), 36-48.

Philip, J., Walter, S., & Basturkmen, H. (2010). Peer interaction in the foreign language classroom: What factors foster a focus on form? *Language Awareness, 19*(4), 261-279.

Piecka, D., Studnicki, E. & Zuckerman-Parker, M. (2008). A proposal for ozone science podcasting in a middle science classroom. *AACE Journal, 16*(2), 203-233.

Plass, J. L., & Jones, L. C. (2010). Multimedia learning in second language acquisition. In R.E. Mayer (Ed.), *The Cambridge handbook of multimedia learning* (pp. 467-488). New York, NY: Cambridge University Press. (Original work published 2005).

Poetschke, F. (2002). *How good or bad is media research on focus groups? What issues are still outstanding with regard to focus groups research?* Unpublished manuscript, Department of Social and Environmental Studies, School of Politics and Communication, University of Liverpool, Liverpool, United Kingdom. Retrieved from http://uncontrolled.info/Materialien/Essays/Essay%20Research%20I.pdf

Popova, A., & Edirisingha, P. (2010). How can podcasts support engaging students in learning activities? *Procedia Social and Behavioral Sciences, 2*(2), 5034-5038.

Reed, S. K. (2006). Cognitive architectures for multimedia learning. *Educational Psychologist, 41*(2), 87-98.

Rocha, A., & Coutinho, C. P. (2010). Screencast and vodcast: An experience in secondary education. In D. Gibson & B. Dodge (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2010* (pp. 1043-1050). Chesapeake, VA: AACE.

Rodriguez, J.P. (2009). Acquisitional patterns of the Spanish copular verbs ser and estar: Data from L2 beginning learners in favor of the declarative/procedural model. *Revista Española de Linguistica Aplicada, 22*, 307-325.

Rosell-Aguilar, F. (2007). Top of the pods: In search of a podcasting "podagogy" for language learning. *Computer Assisted Language Learning, 20*(5), 471-492.

Santos-Green, L., Inan, F.A., & Maushak, N.J. (2014). A case study: The role of student-generated vidcasts in K-12 language learner academic language and content acquisition. *Journal of Research on Technology in Education, 46*(3), 297-324.

Saretsky, G. (1975). *The John Henry effect: Potential confounder of experimental vs. control group approaches to the evaluation of educational innovations*. The Annual Meeting of the American Educational Research Association, Washington, D.C., USA

Shadish, W.R., Cook, T.D., & Campbell, D.T. (2002). *Experimental and quasi-experimental designs for generalized causal inference, 2nd edition*. Belmont, CA: Wadsworth Cengage Learning.

Shankar-Brown, R., & Brown, B. (2014). Today's vodcast: Sunny and clear, with an increased chance of learning. *Middle School Journal, 45*(3), 19-25.

Shenton, A.K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information, 22*(2), 63-75.

Sireci, S., & Faulkner-Bond, M. (2014). Validity evidence based on test content. *Psicothema, 26*(1), 100-107.

Smith, J., & Noble, H. (2014). Bias in research. *Evidence-Based Nursing, 17*(4), 100-101.

Sorden, S. D. (2013). The cognitive theory of multimedia learning. In B. J. Irby, G. Brown, R. Lara-Aledo, & S. Jackson (Eds.), *Handbook of educational theories* (pp. 155-168). Charlotte, NC: Information Age Publishing.

Sprague, D., & Pixley, C. (2008). Podcasts in education: Let their voices be heard. *Computers in the Schools, 25*(3-4), 226-234.

Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science, 12*(2), 257-285.

Sweller, J. (1994). Cognitive load theory, learning difficulty, and instructional design. *Learning and Instruction, 4*(4), 295-312.

Sweller, J. (2005). Implications of cognitive load theory for multimedia learning. In R.E. Mayer (Ed.), *The Cambridge handbook of multimedia learning* (pp. 19-30). New York: Cambridge University Press.

Tarasiuk, T. (2009). Extreme poetry: Making meaning through words, images, and music. *Voices From the Middle, 16*(3), 50-51.

Terrell, S. R. (2012). Mixed-methods research methodologies. *The Qualitative Report, 17*(1), 255-280.

Thorndike, R.M. (1997). *Measurement and evaluation in psychology and education (6th ed.).* Upper Saddle River, NJ: Pearson Education.

Tinker, R., Horwitz, P., Bannasch, S., Staudt, C., & Vincent, T. (2007). Teacher uses of highly mobile technologies: Probes and podcasts. *Educational Technology, 47*(3), 16-21.

Traphagan, T., Kusera, J. V., & Kishi, K. (2010). Impact of class lecture webcasting on attendance and learning. *Educational Technology Research and Development, 58*(1), 19-37.

Trochim, W.M.K. (2006). *Research methods knowledge base: Qualitative validity*. Retrieved from http://www.socialresearchmethods.net/kb/qualval.php

Trochim, W.M.K., & Donnelly, J.P. (2007). *The research methods knowledge base, 3rd edition*. Cincinnati, OH: Atomic Dog Publishing.

Tufford, L., & Newman, P. (2010). Bracketing in qualitative research. *Qualitative Social Work, 11*(1), 80-96.

Unluer, S. (2012). Being an insider researcher while conducting case study research. *The Qualitative Report, 17*(29), 1-14. Retrieved from http://www.nova.edu/sss/QR/QR17/unluer.pdf

Vajoczki, S., Watt, S., Marquis, N., & Holshausen, K. (2010). Podcasts: Are they an effective tool to enhance student learning? A case from McMaster University, Hamilton Canada. *Journal of Educational Multimedia and Hypermedia, 19*(3), 349-362.

VanPatten, B. (1996). *Input processing and grammar instruction in second language acquisition.* Norwood, NJ: Ablex Publishing Corporation.

Walker, J. D., Cotner, S., & Beerman, N. (2011). Vodcasts and captures: Using multimedia to improve student learning in introductory biology. *Journal of Educational Multimedia and Hypermedia, 20*(1), 97-111.

Walls, S. M., Kucsera, J. V., Walker, J. D., Acee, T. W., McVaugh, N. K., & Robinson, D. H. (2010). Podcasting in education: Are students as ready and eager as we think they are? *Computers & Education, 54*(2), 371-378.

Whitney, L. (2005). Middle level teachers using focus groups research. *Academic Journal Article, 126*(1), 3-9.

Winterbottom, S. (2007). Virtual lecturing: Delivering lectures using screen casting and podcasting technology. *Planet, 18*, 6-8.

Yerrick, R., & Johnson, J. (2009). Meeting the needs of middle grade science learners through pedagogical and technological intervention. *Contemporary Issues in Technology and Teacher Education, 9*(3), 280-315.

Zhang, D., Zhou, L., Briggs, R. O., & Nunamaker, J. F. Jr. (2006). Instructional video in e-learning: Assessing the impact of interactive video on learning effectiveness. *Information and Management, 43*(1), 15-27.